ΛSL

Australian Society
for Limnology Inc.

NEWSLETTER

Volume 38 #4
December 2000

Registered by Australia Post
Print Post Publication No.PP381667/00125

ISSN 1037-2512

AUSTRALIAN SOCIETY FOR LIMNOLOGY INC.

The Australian Society for Limnology (ASL) is an Australian-based scientific society whose focus is the study and management of inland waters. The ASL was established in 1961, and has a current membership of over 600 researchers, managers, engineers, teachers and tertiary level students from all states and territories. Members have a strong professional interest in inland aquatic issues, including the maintenance of biodiversity, the maintenance and/or restoration of water quality, and the wise use of aquatic resources. The Society also has a strong interest in fostering the scientific and intellectual development of tertiary students.

The Society includes members working in government agencies, tertiary institutions and many industries related to aquatic resources. Through their daily activities, members have contact with local communities and are in a sound position to interpret and advise on inland water issues. The Society has a substantial knowledge base, and has assumed a responsibility to ensure that this is available to those who manage inland waters.

Accordingly, the charter of the ASL is to further our understanding of Australia's inland waters and to promote their wise use and sustainable management. In this manner we will contribute to the continued existence of this valued resource and the maintenance and enhancement of the quality of life for all Australians.

The ASL regularly produces a newsletter with notes on limnological activities, articles of interest, book reviews and announcements of upcoming events likely to be of interest to Members.

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Membership Information and a list of the Regional Executive Officers can be found at the back of this Newsletter.

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Material for publication in the **Volume 39 #1 Issue** of the Newsletter should be sent to the Editor (see back pages) by **3rd March 2001.**

All articles should be forwarded, if possible, as unformatted text on a disk or via email.

ASL Home Page

http://www.asl.org.au/

This Newsletter is printed by Border Multi Print, Wodonga, packaged by Kalianna Pty Ltd and distributed by Australia Post.

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EDITORIAL

Welcome to the Christmas 2000 issue of the Australian Society for Limnology Newsletter. Thanks to all contributors both to the goss and other articles.

Congratulations to Paul McEvoy who has joined the ASL Exec in place of Kerri Muller. Congratulations also to our President on her Presidents report, she kept under one page!

This issue sees the draft strategy to stop and reverse the loss and degradation of Australian wetlands presented at the Australian Wetlands Forum. Please read this and pass any comments onto Max Finlayson or Pierre Horwitz. There are also an interesting array of articles and even a book review in this issue.

I'll keep this short so you can get on with reading.

Merry Xmas and see you in the new year.

The Ed.

PRESIDENT'S REPORT

President's Report

Wow! Doesn't time fly? Merry Christmas!! The Exec has been busy but rather than invoke the wrath of our Editor yet again for going over my page limit (I didn't know there was a limit!), I shall direct you to the minutes of the latest teleconference (page 72). One of our recent accomplishments was setting up the new Executive structure, which I have outlined in a separate article (page 6). The new structure is designed to make our exec more effective and streamline the smooth working of our society.

There has been some discussion of late about the future of ASL, in the last newsletter (38/3) and on the listserver. It's great to see so many people keen to contribute and care so much about ASL's path. I have taken all comments on board for future guidance in executive matters. My $0.02 can be found on page 8.

As seen in teleconference minutes, John Harris and his team have completed a policy document on Carp (stay tuned to our website (http://www.asl.org.au) – coming soon). Thanks John and everyone for your excellent work on this. Jon Neville is seeking interested parties to join him in developing a new policy document on Aquatic Reserves. I encourage you to check out his article on page #.

Been to an ASL pub night recently? These are great evenings to get together and yarn limnologically or otherwise. An excellent way for students to meet everyone before coming to an ASL congress. It can sometimes be difficult to set up a critical mass for these evenings. I know we're all busy, but it's great when you get there. Look out for the next advertisement in your state and check it out. If you're not on your local chapter email list or have a brilliant idea for an evening, contact your state rep (see page 87).

I, like many of you, was shocked to hear Bill William's recent post on the listserver that he had to go into hospital with acute leukemia. Bill's inexhaustible contributions to the society go back to ASL's founding and the Exec took the liberty of sending him good wishes from us all in ASL in a card.

I was very happy to see such a large newsletter last month – great to see so many contributions. Keep it up! So much distractive material when one should be marking papers or some such. Can't wait to hear how well 4L pots mimic open floodplains – is the exciting conclusion in this issue Ivor? ('fraid not, I'll work on it - ED)

For now I wish you all a very happy holiday season. I hope to see many of you at SIL.

Cheers, Jane Chambers
1st December 2000

NEW EXECUTIVE STRUCTURE

Jane Chambers, President

Recently a new structure has been set up for the executive committee. The previous model used by the society aimed for a "low key" executive. The principal duties of running the society were shared between the Treasurer/membership officer, Secretary, the President and the newsletter editor. This sharing of duties amongst only a small group of the executive placed a relatively large burden on 1-4 individuals limiting the ability of the Society to respond to any good ideas (ie. policy or other initiatives).

The purpose of the new model is to streamline the functions of the executive and spread the workload more evenly so that people can be more effective. Each person can learn the necessities of their role and provide a contact point for members of the society who have queries in that area. This does not mean that the person acts alone, but that they guide the executive in that area. The executive provides support and discussion of any ideas brought forward. This new structure does not change the State representation, there is still one member per state, these are duties are additional to that role.

The structure outlines a number of positions, one per executive member:
Key functional roles required by the Society and their current incumbents are:
- treasurer - Margaret Hart
- secretary – Richard Marchant
- congress organiser – Michael Shirley
- liaison with membership and membership officer - Simon Josey
- awards coordinator – Andrew Boulton
- promotional coordinator – Abbie Spiers
- publications manager – Jane Growns
- policy coordination – Deb Nias
- submissions coordination – Pierre Horwitz
- media liaison – not filled
- website manager - Simon Josey
- newsletter editor – Ivor Growns
- listserver manager – Simon Josey

The Treasurer, Secretary and Newsletter Editor are traditional positions that ASL has always filled. The website and listserver manager are fairly self explanatory. A brief description is given below of new positions:

- *Congress Organiser:* Liases with congress organisers, is on the congress organising commitee and keeps Exec up to date with progress. Ensures congress organisation is proceeding in a timely fashion.
- *Liaison with membership and membership officer*: Fields enquires for membership from the web page.
- *Awards Coordinator:* - Handles enquiries regarding all awards given by ASL (ASL Medal, student prizes etc). Promotes ASL awards, is active in development of new awards or streamlining process for current awards. Organises details for student awards at congresses, forwards nominations to appropriate committees.
- *Promotional coordinator* - Is active in developing ways whereby ASL can be promoted to scientists, managers, government and the wider community.
- *Publications manager* – is responsible for, and ensures smooth publication

of, all ASL publications. Promotes publications to ASL members.
- *Policy coordination:* Liases between the Policy committee and the Exec. Coordinates policy document development and is responsible for their publication. Ensures that policy documents are developed in a timely framework.
- *Submissions coordination*: Liases with Policy committee and the Exec. Is aware of submissions that could/should be made by ASL. Liases with members who wish ASL to make submissions. Ensure that submissions from ASL are kept in a timely framework.

Now I can foresee people being a little nervous about coming forward to be on the Exec if they are to be dobbed in for one of these positions. You are not dobbed in. When you agree to a nomination, you select an area where you believe you have valuable skills and/or that interests you. No previous experience is necessary, on the job training is there for you, the Secretary and President is available if you have any queries and you are supported by the Executive in all your efforts. The workload is reasonable (that's why we have divvied up the jobs, to reduce workload) and is largely defined by the enthusiasm of the incumbent, although there are of course necessary tasks.

I hope that people considering joining the exec in future might be keen to contribute to ASL in one of these new roles. I certainly encourage you to give it a go. Neither are these positions set in steel, new positions might come up with new ideas and services ASL might provide its members. The new model is flexible and can only streamline the smooth working of our society.

LETTERS TO THE EDITOR

A REPLY TO RECENT CORRESPONDENCE ON THE FUTURE OF ASL

Jane Chambers, President

The recent correspondence about the future of ASL (Newsletter 38/3 and comments on the listserver) is great to see. Any society where people care enough to be vocal about what they do (or don't) want is very healthy.

Most of what has been said relates to the congress this year in Darwin and perhaps it has been held as symptomatic of changes within the society. There were some new initiatives at the conference (the AWF and Snowy River forum) and with all new things come teething problems. If the focus of the congress appeared to shift I believe this was primarily due to timing. The Snowy River forum was held on Friday afternoon, the Australian Wetland Forum (AWF) was held all day Saturday, with the regular ASL congress format on either side. By Sunday morning you might have felt "managed out" having had only half a day of regular format papers and perhaps this feeling held sway for the rest of the congress, despite over 100 regular papers being presented at the congress. This is not a criticism of the organisers, who excelled this year I believe. Everything is easy in hindsight.

ASL is a scientific society with knowledge about aquatic systems that should be utilised for the best management of inland waters. We should place our focus on what avenues will reap the most benefit for Australian wetland ecosystems. I don't feel that we have a mandate from the members to be a politically active society, as has pointed out in recent correspondence, there are other advocacy groups. To be effective would require greater funding and a paid secretariat. That does not disqualify us from making a valuable contribution to the management of our inland waters. But to be useful we need to be heard and be as effective as possible within the limitations of our resources.

The AWF is just one such avenue. It has provided a new forum whereby managers and advocacy groups could interact with ASL and vice versa, promoting a better understanding between groups and promoting linkages. When we can't afford the time or expense to publicise our own science, it makes sense to educate those in a better position to do so. The AWF attracted a larger number of managers to the conference, people that stayed on for the scientific sessions fulfilling the objective for managers to hear our science. But perhaps in future we could have such a forum before or after the congress to allow people a better choice of attendance.

As a member commented recently "there is no clear distinction between lobbying and scientific comment, no clear distinction between managerialism and science. The world is not that simple; they are strongly influenced by each other." I would hate to see some kind of artificial division of "science" and "management" surface in ASL. Most of us deal daily with both areas. Neither do I think ASL has drifted from its roots. We are a scientific society first and foremost that has shouldered its responsibility to contribute to the wise use of our aquatic resources. ASL will continue to comment from its strength – its scientific base – when comment is asked (eg in the draft Snowy River Policy) and in policy documents when the whole of the society has the opportunity for comment. Our congresses will continue to focus on scientific exchange. Every congress has it's own flavour, Darwin veered one way... The AWF is not a new integral part of the ASL congress format but an extra, a collaborative venture that can run back to back with ASL to maximise it's value to everyone. I can remember some past conferences when I felt all ASL studied invertebrates. What is important is that we get together and discuss our work. See you in Echuca!

DEAR FELLOW LIMNOLOGISTS,

Many elements of my professional life have in one way or another intimately involved SIL congresses. SIL congresses have provided important opportunities to meet international colleagues. They have been places where I have been able to discuss with like-minded colleagues those areas of limnology of special interest to me (salt lakes, arid zone limnology). And, not least, SIL congresses have been the places where I met many of my life-long friends for the first time.

Let me bring these general comments into sharper focus by example.

Just after I began my professional career (at Monash, 1961), I attended my first SIL meeting. It was in the USA (Wisconsin). To attend cost me an arm and a leg, but attend I did (and I was poorer then than I am now). I met Prof Joachim Illies there who invited me to spend my next sabbatical in Germany with him. This I did, aided by a grant from the Max Planck Gesellschaft (which was a lot more than the money I had shelled out to go to Wisconsin). My first son was born in Germany whilst I was there. Subsequent sabbatical leaves in the UK (at the Ferry House) and Hong Kong also grew from contacts made at SIL congresses.

At the SIL meeting in Canada (1974), a small number of participants (Ian Bayly, Ted Hammer, John Melack, Stuart Hurlbert and some others) convened a discussion group with the idea of starting a series of international meetings focussed on salt lake studies. The idea took root and the first of the meetings took place in Adelaide in 1979. Subsequent meetings have taken place in Canada, Kenya, Spain, Bolivia, China, USA. All have had published proceedings.

With regard to colleagues I have met at congresses whom I now regard as life-long friends, it would be invidious to select examples (and besides the list is too long!). Let me say simply that I am privileged to count amongst my friends many limnologists who have made lasting contributions to our science. And there is not a country that I can visit that does not have several of my friends as residents (and who are invariably and embarrassingly hospitable).

I suppose it is possible to live the life of a limnologist more or less isolated from colleagues, concerned only with individual problems. But, if so, it would be a vastly more impoverished professional life than the one I have led.

The downside is that it costs money to be a member of SIL (not much considering the value of the Verhandlungen) and attend congresses. The latter is particularly high for Australians given where we live. However, GOOD NEWS, the next congress is in Melbourne and whilst, as always, the registration fees seem high, the fare there - for just once in our professional lives - is minimal.

Have I written enough to persuade you to join SIL and attend the congress in Melbourne? This is a once-in-a-lifetime chance. Don't miss it. Nobody I know who has attended an SIL congress (and it says something that many participants are repeat performers) has ever regretted it. I am sure you won't either!

There is one final point I'd like to make. Australians have much to teach our colleagues overseas. Melbourne provides a good chance to do so. After all, most of the limnological world is more like Australia than that 20 percent where one finds dimictic lakes!

For details of how to join SIL, contact Richard Marchant, our national representative; for details on how to attend the congress in Melbourne, contact Ms Irene Thavarajah. Their email addresses are given above.

See ya there!

Bill Williams, SIL Editor

DEAR ALL,

At the risk of relegating myself to the category of old fogey/fossil/fart I remember attending my first ASL conference in 1978. I enjoyed it immensely for many of the same reasons described by Glenn Johnstone in the recent Newsletter (38#3), More importantly, even the most cursory comparison of the amount of science presented then to the amount at recent conferences, including Darwin, suggests that the depth and breadth of the science presented has increased enormously. Clearly the programming in Darwin did not suit everyone but organising a criticism -free scientific program for a conference is probably becoming a less rather than more achievable task (the program at the Quebec INTECOL Wetlands Conference was marred by a high proportion of missing speakers- although the conference itself was well worth attending). Rather than spending our energies looking inwards surely the the more important question is how ASL can contribute to the current media awareness that funding for R&D in Australia has reached a critical low point. The link between higher funding and better outcomes has been made for sport - thanks to the Olympics. A quick comparison of the estimated $40 million spent for each Australian gold medal with LWRRDC's funding for innovative research of $1.4 million over the next three years suggests that we need to do something !

Jenny Davis

KLETS, PRAAT, GESELS

THE WATER STUDIES CENTRE, MONASH UNIVERSITY, CLAYTON

Well let's start with the biggest project. **Chris Walsh, Sophie Bourguès, Mike Grace, Simon Roberts, Simon Heislers, Peter Breen, Barry Hart** and **John Beardall**, together with **Tony Wong** and **Tim Fletcher** of the CRC for Catchment Hydrology, **Peter Newall** at Vic EPA, **Darren Baldwin** and **Gavin Rees** at MDFRC, **Jim Peterson** and **Pua Tai Sim** of Geography and Environmental Sciences at Monash, and the full complement of the **Mormon Tabernacle Choir** have begun work on a large CRCFE project investigating the effects of urbanization on nutrient processing in the small streams draining the hills to the east of Melbourne. Also associated with the project are **Adam Fischmann** and **Kerry Napier** (summer students working on sediment respiration) and **Volker Niehaus** (visiting from the Technical University of Berlin working on nutrient spiralling).

The Biogeochem group has been very active. **Barry Hart** has just attended a conference in Indonesia on water pollution control in the Surabaya River (East Java). Barry was the keynote speaker at the Under the Microscope Gippsland Lakes Forum. **Mike Harper** is leaving us to return to the UK because he is missing the warm beer. Mike has been working on biogeochemical models of streams as a part of the NEMP and CRCFE sediment-nutrient processes projects. **Sophie Bourguès** has just arrived back from France where she had a great time. **Mike Grace** is project leader of the CRC ecological risk assessment project. **Ian Fraser's** brief return to Australia from Thailand (where he has been attending workshops and conferences with **Ron Beckett**) has been fraught with the ambition to complete writing up the Ph.D. thesis. **Kellie Watts** has begun a Ph.D. investigating biogeochemical cycling of nutrients in a degraded rural stream. **Jennifer Driessen**, who has also recently had her PhD accepted, is now occupied with being a mum to three month old **Georgie**. **Gillian Beattie** is writing up her Ph.D. and living in Hobart, working at the University of Tasmania. **Rod Ferdinands** is writing up his Ph.D. on the regionalisation of the Latrobe River catchment using base flow turbidity and also the characterization of base flow suspended solids (what ever that means).

Peter Breen has been to the International Water Association Wetlands specialist group conference in Florida. Peter also inspected storm water management infrastructure in Illinois and Florida and well as the Grand Canyon.

Chris Walsh, with the assistance of **Kristy Brooke**, is sampling invertebrates from disturbed urban streams into which rock riffles were placed 4 years ago, to assess the effects of habitat restoration in these disturbed systems. **Jason Sonneman** is also continuing his Ph.D. work.
The highlight of decade for **Ron Beckett** and the Field Flow Fractionation research group is the submission of four theses. **Shoeleh Assemi** investigated the characterization of organic matter on size and molecular weight characterization of NOM; **Bailin Chen** investigated pollutants associated with soil and sediment colloids; **Jawei Le** investigated contaminant speciation using thin channel separation techniques; and **Chineha Fonseka** investigated the degradation of pulp and paper mill effluent. I guess he'll be looking for some new students soon.

Those that remain in Ron's group are **Niem Tri**, a Ph.D. student who is investigating the development of a Acoustic SPLITT and FFF technique and **Rattikan (Jin) Chantiwas**, who is visiting from Chiang Mai University in Thailand, is developing a combined FFF with FIA technique. **Niem** is about to leave for Bangkok to give a talk on particle characterization using

sound waves. **Reshmi Sharma** (a research fellow with Ron) is working on various FFF projects including the development of thin channel separation methods (SPLITT fractionation) and their use in pollutant speciation studies.

Robert Seefeld, the new centre manager, has previous experience at C.U.B. and is missing the free beer. Another recent addition to the **Jenny Ekanayake** who is working as the secretary and at reception with **Mary Luckin**. Mary is about to walk Cradle Mountain and Freycinet National Parks in Tasmania (not fair!).

Working with **Ashley Liang** in the bustling analytical lab are a few new recruits **Rick Royle**, **Kosta Kouyias**, **Athene Dwyer**, **Soheyl Tadjiki** and **Monica Tewman**. Soheyl, who recently submitted his PhD, will be leaving us in January to begin work for FFF Fractionation in Utah, U.S.A.

Ian McKelvie has been fighting back the fires and gymnastic routines of the Flow Injection Analysis research group. **Sarah Gray** is taking a break from research investigating total nitrogen using photooxidation FIA, after continuing Ian's unbroken track record of first class honours students. **Michelle Hindle** will be beginning the Graduate Program of the EPA in the new year. Michelle has been optimizing a size exclusion technique to separate high and low molecular weight phosphorus. **Amanda Lyddy-Meaney** is optimizing the chemistry on a new miniature FIA system designed and developed by **Peter Ellis**. Ian, who's self praise is a common occurrence to those who know him, said 'it is the best portable analyzer that every Limnologist must have'. **Nahid Amini** (Nana) is finishing up her Masters on the determination of phospholipids by enzymatic FIA to move to Sweden with her husband. **Belinda Lovell** has just joined the committee of ANZAAS and is continuing nutrient spiralling experiments over the summer.

From Belinda Lovell

Otago Fish Ecology Group, University of Otago, Dunedin.

This is the first OFEG news entry in the ASL newsletter. OFEG is a fish research team with a strong Australian contingent led by the man with the talent for juggling many students, **Gerry Closs**. As well as constantly accruing new students, Gerry is also furthering his contribution to the human gene pool, his wife Robyn has just given birth to another baby girl, Katie Isobel; Robyn and Katie are both well. **Bruno David** (PhD) continues to spend many a lonely night by the side of small streams watching Giant Kokopu, the world's largest galaxid. Bruno is on a first-name basis with each individual galaxid in his study streams, and can be seen chasing natural predators away from his 'babies' at all hours of the day. His research focuses on multi-scale habitat associations and activity patterns in this species, and he is about to begin a study on dominance hierarchies in this species. **Amy Whitehead** (Hons) is about to begin an honours project centred on spatial size segregation in Giant Kokopu. **Cornelius Kater** (MSc) is planning on conducting a survey of fish distribution in coastal streams in 2001. **Ben Ludgate** (MSc) is working on the responses of small wetland communities to removal of adult European Perch. Results indicate perch may be reducing juvenile recruitment of native common bullies (Gobiidae) and restricting their habitat use. **Ruth Goldsmith** (PhD) is about to embark upon an exciting PhD project focusing on stage-specific interactions between European perch and common bullies. She is currently setting up a range of enclosures in Lake Waihola for a series of experiments dealing with competitive and predatory impact of perch on bullies. Lastly, I'm (**Rick Stoffels** (PhD)) studying habitat and trophic interactions involving fish in the littoral zones of some large, oligotrophic Fiordland lakes. This study is basically using food web analyses (stable isotope and traditional linkage webs) as a tool to trace invertebrate production from littoral zone microhabitats through to the top predators, brown and rainbow trout. Results show that flyfishermen like me get very little work done when their work sites are right in the middle of the world's finest brown trout fishing region!

From **Rick Stoffels**.

SINCLAIR KNIGHT MERZ, MELBOURNE

Life continues to be busy and full of variety with the ecologists at Sinclair Knight Merz. **Simon Treadwell** and **Kylie Lewin** have recently returned from a conference on Large Woody Debris in North America. Apparently the conference was only OK but they saw lots of Polar Bears when they went to the tundra. **Rod Hardwick** has recently finished a study assessing the environmental, health and social benefits of upgrading a section of Melbourne's sewers, the description of the different types of sewage was more detailed than we needed for a lunchtime seminar. The Victorian statewide environmental flows protocol project keeps rolling on, **Michael Shirley** and **Alieta Donald** are looking forward to a workshop with various environmental flows luminaries that they hope will answer all their questions. **Lien Sim** has returned from Perth never having seen so much salt in so called wetlands before. **Lisa Menhenett** and **Kylie** are commencing a study of the ecology of Lake Leaghur in northern Victoria, and have almost finished work at Reedy Lake. **Sam Hannon, Bruce Abernethy** and **Michael** have finished boring everybody about their helicopter flights along the Murray, and continue to assure everyone it was an extremely efficient way of getting around. **Tanya Wansbrough** continues to bridge the divide between ecology and geomorphology with Bruce working on projects from Lindsay Island to South Australia and Tasmania, unfortunately from her perspective only from the office. A recent series of seminars organised by **Lien** and **Tanya** have meant we are learning what some of the engineers here actually do, and equally **Lien** educated them about the impact of allelopathic compounds on algae.

By Michael Shirley

NSW FISHERIES

Summer is upon us as we are well into the busy time of year when field sampling is in full swing. This year is likely to be extra busy following the departure of **Craig Schiller** from Narrandera to take up a position with AWT in Melbourne.

Ivor Growns has just returned from attending a course on Ecosim modelling at the University of British Columbia. Ecosim provides an array of trophic modelling approaches that we want to explore in the context of fish responses to changes in river flow management under the New South Wales water reforms. There are also opportunities to use Ecosim to examine ecological effects of fish stocking programs in both freshwater and coastal ecosystems. This is an important issue since there is an increasing demand for fish to be stocked into rivers and estuaries in the belief that stocking increases angler's catches.

Fish sampling for the Integrated Monitoring of Environmental Flows program is underway again, with **Simon Hartley** and **Andrew Bruce** from Port Stephens and **Ian Wooden** from Narrandera carrying most of the load. The Gwydir River samples are finished, but the Namoi trip was flooded out. Looks like we won't be back there for a little while. Other rivers studied include the Macquarie, Lachlan, Murrumbidgee, Barwon-Darling, and the Hunter.

In a collaborative project with **Andrew Brooks** from Macquarie University, we are assessing reponses on fish communities to habitat rehabilitation in the Williams River. A number of large log piles were positioned in the river to recreate habitat heterogeneity, but a number of local residents suspect the works are part of a beaver farm ...

On the fishways front, **Peter Gehrke, Dean Gilligan** and **Matt Barwick** have finished the latest stage of the Tallowa Dam investigation, and the Sydney Catchment Authority is now entering a feasibility study to design a suitable fishway. If the design is proved to be effective, then fish passage will become a realistic option for other high dams throughout Australia.

From: **Peter Gehrke**

ECOSYSTEM MANAGEMENT, UNIVERSITY OF NEW ENGLAND

The ice has melted on the Tablelands and limnos emerge, blinking, into the spring landscape. **Leah Watson** has finished her Honours thesis on the effects (or non-effects!) of antimony mining and runoff on stream fauna in a stream already badly hammered by agricultural impacts upstream. Her enclosure experiments found higher mortality of *Atalophlebia* nymphs in adit water with higher concentrations of Sb but there are also quite high levels of other nasties like arsenic so the story is not clear cut. Meanwhile, **Marcus Finn** has selected his sites on the Forbes and Wilson Rivers (near Wauchope) to track changes in stream fauna and litter decomposition in response to protracted low flows from extractions of water in these unregulated streams. November, supposedly the critical month for low flows, has seen a substantial flood and even the usually dry side channels are flowing well. Doh!

But **Peter Hancock**'s project on the hyporheic zone of the Hunter River benefits from the flood effects as he is able to explore the effects of changed flows on nutrient and faunal dynamics along the subsurface flowpaths. Also, hyporheic, **Andrew Boulton** has been tracking changes in response to increased flows and vigorous plant growth along the sand bars and riffles of Rocky River, a sand-slugged system that carries some 70 000 tonnes of sand annually according to a recent EPA report. Some early results will be shown at SIL in Melbourne next year. French colleagues **Pierre Marmonier** and **Marie-Jo Dole-Olivier** arrive in mid-December to conduct some flow experiments with Andrew on the hyporheos of the Never-Never River, and we are hoping to supplement this with some NaBr injection studies too. **Cecile Claret**, now working with **James Ward** at EAWAG, will conduct some simultaneous microbial assays in the Never-Never sediments and she will also be at SIL, keen to chat with Australian aquatic microbiologists about surface and subsurface microbial ecology.

Sue Botting, in between working on **Margaret Brock**'s seedbank and salinity projects for CNR, is frenetically writing up chapters on her thesis, the latest on nutrient limitation in 6 streams on the Macleay system. **Colleen Watts** has handed in her PhD thesis on phosphorus in Carcoar Dam and Lake Rowlands and awaits her examiners' comments. **Tho Tien**, studying the hydrology of Howard Springs co-supervised by **Peter Jolly**, is also working hard towards completion of her Masters thesis.

From: **Andrew Boulton**

AUSTRALIAN MUSEUM

Interactive CD Rom guide and key to the freshwater Mollusca of Australia

This project, funded by ABRS, will result in a fully illustrated identification guide and interactive electronic key to the 446 currently named species, and approximately 100 unnamed species of Australian freshwater molluscs. The known freshwater mollusc fauna has more than doubled in size in the last couple of decades with previously unsuspected high diversity, particularly in SE Australia and Tasmania.

Freshwater molluscs are well known as excellent environmental indicators, some taxa being sensitive to pollution, some restricted to very narrow environmental parameters, and some accumulating heavy metals and are useful as indicators of pollution. Their full potential in monitoring and as environmental indicators has not been realised in Australia, nor has their potential in ecological studies, largely because readily accessible information has not been available. Molluscs are useful in ecological studies because they are easily collected and, with the key, will be able to be accurately and quickly identified. Their utility is further increased because, unlike most other groups of aquatic animals, they do not have marked seasonality or different morphs in their life cycle.

The interactive key and information system project is being undertaken by a team at the Australian Museum **(Winston Ponder, Stephanie Clark, Michael Shea, Holly Barlow)**. It will operate using INTKEY and be distributed as a CD ROM that can be used by non-experts, including high school and university students. It will contain colour illustrations and detailed distribution maps of each species, as well as summarising known information on their ecology and biology and the literature and taxonomy of each species.

A similar interactive key has recently been published (CSIRO Publishing) by Ponder, Clark and Dallwitz on the estuarine and freshwater molluscs of NSW.

From: **Winston Ponder**

FROM THE NORTHERN TERRITORY UNI...

Clint McCullough has just started a PhD at NTU studying the ecological effects of magnesium sulphate, in Magela Creek. Clint is based in Jabiru and is being jointly supervised by **Michael Douglas** (NTU) and **Chris Humphrey** (*eriss*). **Sally Kent** recently started honours studying the effects of fish and shrimp exclusion on stream-stone macroinvertebrate and algal communities in Litchfield Park. Fish and shrimp are being excluded using electrified quadrats, a technique pioneered by Cathy Pringle from the USA. **Michael Welch** is also working on this line of research and is also working on weeds projects in the savannas. **Gael Davidson**, who is also jointly supervised by Dougo and Chris, will have already celebrated the completion of her honours thesis when this goes to print. Gael has been working on the effects of elevated turbidity on macroinvertebrate communities near the Jabiluka mine site. **Paul Delastang** is also currently slaving away to finish his honours thesis. Paul has been studying the effects of saltwater intrusion barriers on fish communities in the Mary River. **Ruth O'Connor** is going well in Cambodia and is greatly missed around NTU, especially when there are bugs to be ID'd or vegetable curries to be cooked!

ERISS AND THE NATIONAL CENTRE FOR TROPICAL WETLAND RESEARCH...

Bob Pidgeon, **George 'Canetoad' Begg** and **Ben 'Bolus' Bayliss** recently dashed to Arnhemland to beat the arrival of the Wet season (and avoid a performance appraisal workshop) and work with Djelk Rangers to complete a survey of fish in the floodplain zone of the Cadell River. This trip completed an inventory of fish in the 'Djelk Wetlands' of the Cadell and Mann rivers which was begun four years ago, no less. The survey has provided data on the distribution and relative abundance of freshwater fish, which is being used by the djelk rangers to evaluate commercial prospects for the aquarium fish trade, and provides baseline information for the evaluation of future impacts of harvesting and environmental disturbance. This is timely, as most of the headwaters have mineral prospecting leases on them and the communities are keen to develop sustainable and socially compatible economic uses of their lands to reduce their dependence on social security. As previously reported in this forum, this program extended the western extremity of the known range of the threadfin rainbowfish (*Iriatherina werneri*) to the Cadell and Mann rivers. The rangers have had some expressions of commercial interest in this species but subsequent attempts by the rangers to find them had been unsuccessful. Our recent visit found large numbers of the species in some readily accessible sites, which will allow convenient harvest of fish for sale or brood stock.

George Begg also jetted off to Japan recently to attend a workshop to discuss the progress of the Asian Wetland Inventory. The AWI is based on protocols developed by ***eriss*** for the Environment Australia Wetland Program, and closely follows the Ramsar Convention's resolution on wetland inventory (COP7 Resolution 20), which was derived from a global review of wetland resources (***eriss*** and Wetlands International, 1999). The Japanese Environment Agency has provided initial funding for the project. George came back shaking his head about some of his culinary adventures in the line of duty!

Contact with Wetlands International has continued, with **Max Finlayson** attending a technical planning and board meeting in Wageningen, the Netherlands during early November. After escaping the attractions of Amsterdam (the Rijks Museum, van Gogh gallery, Madame Tusauds) he delved into debates about how to better involve scientists and a sound science-base into wetland conservation and management projects; that is, how to get the information at a global level and

ensure it can be used. The debate is ongoing and should culminate in the WI technical seminars on key wetland topics being planned for next Nov, also in the NL.

Abbie Spiers has been busy preparing brochures and a website for the National Centre for Tropical Wetland Research, and dreaming up exciting events to celebrate World Wetlands Day on 2 February. The Ramsar theme for World Wetlands Day 2001 is '*Wetland World: A world to discover!*', which has plenty of potential for leech-ridden visits to some soggy Top End swamps in the middle of the wet season!

Prepared by **Abbie Spiers**

AUSTRALIAN WATER QUALITY CENTRE

BOLIVAR SOUTH AUSTRALIA

AQUATIC ECOLOGY & BIOMONITORING SUB-UNIT

We are delighted to see **Paul McEvoy** on the ASL executive. There are some new projects on the books including ID work for the Bookmark Biosphere project on the Murray Wetlands near Renmark. During the locust plagues in northern South Australia we are carrying out an investigation for the EPA on whether insecticides reach waters, especially after recent heavy rains in this semi arid region.

There are two new projects with Sinclair Knight Merz staff from Melbourne and Adelaide. The Onkaparinga Catchment environmental flow requirement study is underway and the preparation of a catchment water management plan for the SE Catchment Water Management Board is about to start.

Sampling has been completed for an EPA project but December will be very busy with sampling due in six other projects.

Sam Wade has moved on to the SA EPA freshwater biology group where he is bound to make an audible impact. We wish him well. For those who would recognise his infamous laugh I must pass on this piece of news. Sam & I have returned to Blinman every year since ASL congress at Berri in 1996 staying at the same venue as the post congress tour. With a largish group we attend the annual Blinman Gymkhana and Race Meeting. This year a family was staying in a cottage 200m away. At 1am on the last wine lubricated night the nine year old child of the family woke her mother saying "Mom, I can't sleep. I am too scared! There is a witch down by the creek, you can hear her laughing now".

Peter Schultz

MURDOCH UNIVERSITY

AQUATIC ECOSYSTEMS RESEARCH LAB

As Jane mentioned in the last newsletter a rather large contingent from the various freshwater and wetland groups at Murdoch attended the INTECOL conference held in Quebec, Canada in August. At the conference, **Arthur McComb** and **Jenny Davis** received an award for their organisation of the INTECOL conference held in Perth in 1996. Last week we all received the fantastic news that **Jenny Davis** has been promoted to Associate Professor. On the student front, the seven 4th year students that **Jane Chambers** has supervised this semester have all submitted their final projects and the lab seems considerably emptier than it did a few months ago. **Leanne Hartley** has just submitted her Honours which involved sampling and identifying invertebrates from 27 wetlands on the south coast of Western Australia. After about a days recovery from the thesis, Leanne was initiated as a paid member of the Aquatic Ecosystems group to help out on a number of small projects underway. **Núria Bonada,** a visiting PhD student from the University of Barcelona left us on Sunday after a 3 month stint. Núria's sampling for caddisflies took her to the southwest of the state. Núria shared her passion for cooking by spoiling us all with a Spanish feast before she left. **Karen Sutcliffe** continues her search for the elusive *Petalura hesperia* dragonfly and **Juan Chen** has started to get into some lab work for her PhD project. **Jacqueline Giles** has been busy tagging and monitoring turtles from a number of wetlands for her Honours project. I have it on good authority that **Halina Kobryn** has only one chapter of her PhD thesis to write which she hopes to complete before January. We already have two new Honours students for next year. **Heather Gordon** will be investigating Manning's n of riverine sedges and rushes of the streams of the southwest and **Leah Delfs** is going to investigate the feasibility of restoring colour to wetlands on the Swan Coastal Plain and the relationship between colour and eutrophication.

From: **Megan McGuire**

FRESHWATER FISH GROUP

Howard Gill and **David Morgan** have just received NHT funding to determine the distribution of fish in the inland waters of the North-west and Pilbara as well as the biology of a number of species e.g. spangled perch, Murchison River hardyheads. Financial support has also been provided by Fisheries WA and the Water and Rivers Commission. They are also completing work on the biology of the trout minnow and creating species maps for 1300 sites sampled between the Murchison River and Israelite Bay. A NHT project with the Kimberley Land Council on the distribution of fishes in the Fitzroy River will commence next year. **Stephen Beatty** received a 1st Class result for his Honours on marron biology and ecology and has applied for a PhD scholly. **Carina Marshall** will hopefully be joining the group and embarking on a PhD on the genetics and evolutionary history of barramundi, spangled perch and yellow-tail trumps. **Gavin Sarre** is continuing inland aquaculture trials on black bream and, with **Simon DeLestang**, is looking at their biology in the Blackwood River, with the aim of restocking (The jury is out on whether to accept Gav and Sime as associate members of the Freshwater Fish Group).

From: **David Morgan** and **Howard Gill**

DEPARTMENT OF CONSERVATION AND LAND MANAGEMENT

Most of us here are working on projects associated with the State Salinity Strategy. In particular, **Adrian Pinder, Jane McRae** and **Stuart Halse** are working on a biological survey of over 200 wetlands in the wheatbelt, aimed at providing information on the region's biodiversity required for regional conservation planning. At present they are trying to finish sorting invertebrate samples collected last year (1999) but managed to escape the lab to do some field work this spring. The diversity of aquatic invertebrates in the wheatbelt is already far more than any of us expected and the list continues to expand. Jane has been relieving the tedium of sorting with producing some stunning digital images of aquatic invertebrates (and we suspect making some new species in the process?). **Adrian** also attempts to keep up with his worm taxonomy, though the incomings arrive faster than they can be processed. Adrian attended the 8th International Symposium on Aquatic Oligochaeta in Spain, presenting a paper on the diversity and distribution of Australian phreodrilids and naidids. All tapas bars were found to be worm free despite rigorous searching.

Stuart Halse was also on the conference circuit, attending the Intecol Conference in Quebec City in July where he presented a paper on discriminating wetland invertebrate communities using different levels of taxonomic resolution.

For the other State Salinity Strategy project, **Dave Cale** and **Stuart Halse** have been sampling invertebrates and counting waterbirds for the wetland monitoring program and organising the installation of piezometers. Dave and Melita Pennifold are now busy sorting those samples. Dave recently returned from a sojourn across the Tasman, convinced that New Zealand has far more than its fair share of freshwater: "Pupu Springs would fill my farm dam in 30 seconds".

In the 'upstairs' lab **Stuart Halse, Mike Scanlon** and **Jim Cocking** are refining the AUSRIVAS models as the Monitoring River Health Initiative winds down. They have recently been comparing family richness obtained using a box sub-sampler to that obtained using the standard "if it moves pick it" approach. They have also sampled invertebrates and water chemistry as part of a water quality survey of Marbellup Creek, between Denmark and Albany on the south coast, for the Water and Rivers Commission. Stuart, Mike, Jim and Grant Pearson have made a couple of trips to the Fortescue and Mandora Marshes in the state's north-west to survey aquatic invertebrates, water chemistry and waterbirds. A couple of days flying over these areas resulted in counts of waterbirds in the 100 000s (hmm, so that's why there were none in the wheatbelt!).

Winston Kay has recently departed for the Kimberley Region in search of crocodiles for his PhD project (co-supervised by Stuart Halse) on movement patterns and population dynamics of salt-water crocodiles, armed with various contraptions to keep the animals at arms length while taking samples from sensitive orifices.

From: **Adrian Pinder**

CRCFE NEWS

1. SATISH CHOY NOW COORDINATOR FOR DNR INPUT TO CRCFE

Dr Satish Choy has taken over from Dr David Freebairn as the DNR Coordinator for Science associated with the CRC for Freshwater Ecology.

In this role Satish will overview DNR Science involvement in the CRC including coordination of DNR Science input to CRCFE projects and coordination of submissions and progress in associated projects within the CRC.

To this end, Satish should be in the communication loops regarding any DNR Science involvement with any CRC projects or associated projects, any DNR Science matters relevant to the CRCFE Board, and any CRCFE Board matters relevant to DNR Science delivery. For further information, contact Satish Choy, Ph: 07 3848 1504

2. CRC WATER FORUM YOUNG SCIENTIST OF THE YEAR AWARD 2001

The CRC Water Forum Young Water Scientist of the Year Award recognises an outstanding young water scientist undertaking a CRC research project. A prize of $2000 will be awarded to the winner and $250 to each of the other finalists. Finalists also receive a certificate and valuable exposure to the industry and media. The awards are supported by the Australian Water Association.

Peter Cullen encourages CRC students undertaking a PhD, Masters or other postgraduate degree, or whose degree was completed in 2000, to apply for the Award.

If you would like to apply for the award, please send a short paper - 4 pages maximum in 12-point font - on your research and the significance of the project outcomes for stakeholders to Ian McKelvie at the Water Studies Centre, Monash University by 15 December 2000. A panel will then select 2 applicants to forward to the judging panel.

More details can be found in the attached guidelines. For further information, contact: Dr Gerard Vaughan, Liaison Officer, CRC for Water Quality and Treatment, Phone: 03 9545 2184, Email: gerard.vaughan@molsci.csiro.au

3. MEETING OF THE LOWLAND RIVERS PROJECT

The Ecological Functioning of Lowland Rivers Project team met at the MDFRC in Albury on Tuesday 28th November to discuss a range of issues and forward planning.

4. NUTRIENT RELEASE FROM RIVER SEDIMENTS: PHASE II FINAL REPORT NOW AVAILABLE

Nutrient release from river sediments: Phase II - Validation and application of sediment-release model (Project UM 036) Final report is now available. Authors: Professor Barry Hart, Dr Sophie Bourgues, Dr Michael Grace, Dr Michael Harper and Brett Cole, Dr Phillip Ford, Dr Yunhu Tan, Carol Kelly and Garry Miller. National Eutrophication Management Program. Copies available from Dr Sophie Bourgues, Water Studies Centre, Ph: 03 9905 4079, Email: sophie.bourgues@sci.monash.edu.au

CENTRE FOR CATCHMENT AND IN-STREAM RESEARCH, GRIFFITH UNIVERSITY, BRISBANE

CCISR has recently farewelled **Thorsten Mosisch**, and **Brad Pusey**. **Thorsten** has taken up a new position with the SE Queensland Water Corporation, while **Brad** has headed back to Western Australia. It's not really the end of **Brad**, as he will continue to be affiliated with CCISR and the CRCTREM. **Romeny Lynch** has also left us for WA, though only briefly. **Romeny** is back in Perth contemplating impending motherhood and finishing her PhD.

Mick Smith, Jo Clapcott, Mark Kennard and **James Udy** are currently analysing data from the recent major field trial of biomonitoring field methods, which forms part of the SEQ Water Quality Monitoring Study. **Mick** and **Stuart Bunn** recently reported on current progress at the meeting of the Scientific Expert Panel for the study. The team is working overtime to present their findings at the major scientific review in December.

Stuart, Jane Hughes, Michelle Winning, Giovanella Carini, Sam Capon, Harry Balcombe and **Peter Davies** had a recent Western Queensland adventure, which included sampling the Cooper Creek the Warrego, Paroo and Bulloo Rivers. Soils, plants and aquatic fauna were collected; including mussels, clams, prawns and fish. This work was part of the ongoing DNR/Environment Australia project investigating floodplain productivity. Some samples were for genetic analysis to investigate connectivity across different catchments for a range of fauna.

Recent visitors to CCISR included **Richard Norris** and **John Hawking** who were involved in the Waterwatch 2000 conference held at Griffith. **John** with his impeccable timing was able to 'gatecrash' our lab meeting and consume half of the food on offer.

Wade Hadwen has been busy running mesocosym experiments on Fraser Island Lakes to test whether N or P is limiting for algal growth. Ultimately, **Wade** is interested on the impact of human inputs on these systems; hence his unhealthy interest in human urology.

Also at Griffith, some enterprising computer students have developed a Windows version of PATN for teaching purposes. Commercial prospects are being considered.

From **Stephen (Harry) Balcombe**

FRESHWATER ECOLOGY GROUP, CENTRAL QUEENSLAND UNIVERSITY.

This year will see the end of the Downstream Effects of Land Use projects in collaboration with QDNR and QDPI. **Leo Duivenvoorden** and **Larelle Fabbro** are finishing reports. Leo and Sabine Kasel are busily working on a new NPIRD project with an emphasis on irrigation in the Fitzroy catchment, while the macroinvertebrate and macrophyte team of **Michael Price**, **Dan Hamilton**, **Trent Attard** and **Vanessa Lobergeier** are turning their efforts from the Dawson to sampling a number of sites in the Gladstone and Townsville areas.

Roslyn Howse and **Gay Taylor** are into the thick of their Masters work on acid mine drainage in the Dee River and recently checked out a 4000+ fish kill with Leo following what seems like an early start to the wet season.

Brett Roe is finally getting his aquaculture-hydroponics system set up after much hallaballoo about site selection. He dreams of the large barramundi that might one day grace his dinner plate.

Larelle Fabbro and **Heather Smyth** are busily collecting algal samples from a wide variety of sites in Queensland. Heather (with many blisters after moving house) has recently been working her way through algal soup from estuaries in northern Queensland while Larelle and **Glenn Mcgregor** (QDNR) are working on the guide to the Chroococcales for the algal workshop in Brisbane next year.

New Publications:

Mc Gregor, G.B., and L. D. Fabbro. (2000). Dominance of Cylindrospermopsis raciborskii (Nostocales, Cyanoprokaryota) in Queensland tropical and subtropical reservoirs: Implications for monitoring and management. Lakes & Reservoirs: Research and Management 5:195-205.

from **Larelle Fabbro**

FASTS

SPECIAL AWARD TO BARRY JONES

An icon of Australian science will be celebrated at National Press Club on Tuesday.

Barry Jones is to be presented with a special certificate to mark his distinguished service to modern Australia, through his tireless advocacy of science, research, and innovation.

FASTS' President Sue Serjeantson will present the award as part of "Science meets Parliament" Day, organised by the Federation of Australian Scientific and Technological Societies.

"Barry Jones is both truly Australian, and totally international," Professor Serjeantson said. "He was an immense asset to a Parliament which increasingly through his term had to grapple with science and technological issues.

"The greenhouse effect, genetic engineering, the ozone hole, stem cell research, IT, DNA, salinity and water use, nuclear reactors, cloning and the Internet are some of these issues, all offering possibilities or dangers almost unimaginable a generation ago."

Professor Serjeantson said it was not surprising that Parliament had struggled with some of these issues.

"How comforting it must have been to have the presence of the Member for Lalor in the Chamber! Parliamentarians had confidence in his knowledge and understanding of issues.

"They remembered well that he had raised many of these issues in his 1982 book, 'Sleepers, Wake!: Technology and the Future of Work'."

Professor Serjeantson said one of the aims of "Science meets Parliament" Day was to build better links between Parliamentarians and scientists, so both sides feel more comfortable in seeking and offering advice.

"Science has not become an integral part of national policy-making in Australia, in sharp contrast to some of our competitors," she said. "It has to become a natural part of Parliamentary life if Australia is to maintain its position as a modern economy."

The event brings 170 scientists from all corners of Australia to Parliament House in Canberra for individual appointments with their Parliamentary representatives on 1 November.

RELEASE OF THE FINAL SCIENCE REVIEW REPORT

I am delighted to publicly release today my final report The Chance to Change on ways to ensure Australian science, engineering and technology continue to help Australia grow.

In recognition of the importance of the science, engineering and technology (SET) base to Australia's future, in August 1999, the Minister for Industry, Science and Resources, Senator the Hon Nick Minchin, asked me to assess its capabilities to ensure it can meet the needs of Australians in the 21st century.

The consultation process for the Australian Science Capability Review has been extensive. I invited the community to make initial submissions in September 1999, released a discussion document in February 2000 in time for the National Innovation Summit and The Chance to Change-a discussion paper in August 2000.

In April this year, I visited a number of nations which are striking a new direction in the way they are anticipating change. During August and September I held public consultations in all capital cities around Australia, organised by State and Territory governments. The response I received on The Chance to Change-a discussion paper was overwhelmingly positive. These consultations were very useful in helping to refine the report. The Chance to Change also generated hundreds of submissions and letters of support, including an unprecedented letter of support from industry leaders and Academe, published in all national newspapers.

The insights I gained from my international consultations, submissions to the Review, consultations and considerable research have generated an integrated set of proposals for government consideration.

In the Final Report, I propose a new direction for SET in Australia. The direction will ensure that Australians benefit economically, environmentally and socially from the enormous resource of the SET base. It will also ensure that the community is better able to track the progress of their investment.

My report recommends that significant new resources should go into Australia's SET base with the objective of driving much greater activity in the knowledge based economy. The emphasis of such new expenditure should be on supporting excellence under conditions of strict accountability to the community.

I believe that the case presented is too powerful to ignore. If we as a nation want to continue to contribute to the world's ever increasing stock of knowledge and continue to have a strong clear voice in international decision making we must act now to reserve our seat. A strong and healthy SET base is crucial for economic performance and a sustainable national innovation system in the future.

I am particularly grateful for the assistance provided by my distinguished Group of Strategic Advisers.

With community support, Australian science, engineering and technology will guarantee our future.

The Chance to Change-Final Report and further information about the Review can be found at:
<http://www.isr.gov.au/science/review/index.html>
Contact: Sarah Clough, Department of Industry, Science and Resources 02 6213 6798

QUANTUM

FASTS HAS SENT THE FOLLOWING LETTER TO JONATHAN SHIER, MD OF THE ABC:

4 December 2000

Mr Jonathan Shier
Managing Director
Australian Broadcasting Corporation

Dear Mr Shier

Coverage of science by the ABC

Australian scientists and technologists regard the ABC as one of the prime ways of keeping the Australian public informed of developments in science. The importance of this has been underlined in two major reports currently before Government - the Batterham Review and the Innovation Summit Implementation Group. Both make a major point of the need for a greater national awareness of the possibilities and limitations of science.

There is a growing view in political circles that science and technology hold the key to our prosperity, but first Australians need to change the way they think about science and its applications. Both reports urge an engagement of the public in science, technology and innovation; as a means to bringing about a cultural change in Australia.

Clearly the ABC has a major role to play if this national objective is to be achieved, as an authoritative nation-wide source of information and as a critical investigator on scientific matters. An important part of this equation is that scientists trust the ABC to report their research accurately and will therefore cooperate with the ABC, whereas they are less likely to participate in any program that relies on sensationalism.

For 16 years Quantum has made a valuable contribution to informing Australians of new scientific achievements. We regret the decision of the ABC to bring this successful program to an end, while recognising there may be advantages in lookjng at new ways of producing a high-quality program to bring the best of Australian (and international) science to a national audience.

We seek your assurance that ABC will continue to produce high quality science programs for television. What plans do you have for a replacement program?

Our view is that while there is room for commissioning some work from outside production units, the ABC needs to retain a solid core of scientific expertise. This expertise should have responsibility for in-house production and for commissioning the best of the external production houses to do particular segments or programs.

The retention of scientific expertise within the ABC is vital. To be producers or commissioning agents for good science programs, the ABC needs to be an active player in the field. This will provide continuity, balance, impartiality, corporate memory and resistance to commercial pressures.

FASTS is a national body representing 60,000 working scientists and technologists in all disciplines. We work actively with the ABC in news, current affairs and programs in helping them

make contact with appropriate experts in different scientific fields; and would seek to continue this relationship with those involved in the successor to Quantum.

Yours sincerely

Sue Serjeantson

Mr Toss Gascoigne
Executive Director

NEW HEAD FOR CSIRO

FASTS welcomes the announcement by Science Minister Senator Nick Minchin of the appointment of Dr Geoff Garrett as the new Chief Executive Officer of CSIRO.

FASTS' President Professor Sue Serjeantson said the Head of CSIRO is one of the key positions in Australian science.

"CSIRO is Australia's largest and most powerful research organisation," she said. "Its work covers many disciplines and all regions of Australia."

"The work of CSIRO has huge implications for Australians, both in creating wealth-generating industries and solving environmental problems. CSIRO is a true national icon, held in warm affection by Australians everywhere.

"I congratulate Dr Garrett on his appointment, and look forward to working with him as a colleague on the Prime Minister's Science, Engineering and Innovation Council."

Professor Serjeantson said that CSIRO had been under funding pressure for the last decade. Its budget has been reduced by 24 per cent (relative to GDP) over this period, and staff numbers have fallen by 12 per cent.

"Dr Garrett is taking charge of the helm at a time when the Government is reassessing the Australian national investment in science and research," she said. "The Government has indicated it will make an announcement on these matters by January 2001.

"It could be an exciting and challenging time to be in charge of a major research organisation like CSIRO."

Professor Serjeantson said Dr Garrett's international experience in both industry and research would be invaluable as pressures grow on Australian science to be competitive both commercially and internationally.

She commended the work of Dr Colin Adam as acting CEO of CSIRO since the death of Dr Malcolm McIntosh last February.

FEDERATION OF AUSTRALIAN SCIENTIFIC AND TECHNOLOGICAL SOCIETIES

SCIENCE AND TECHNOLOGY FOR THE SOCIAL, ENVIRONMENTAL AND ECONOMIC BENEFIT OF AUSTRALIA

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26 September 2000

Presidents
Member Societies of FASTS

Dear President

"Chance to Change" - the Batterham Review

Enclosed is a copy of the Batterham Review, one of the major reports currently being considered by the Government. The Review is very supportive of an increased national investment in research in Australia, and should be read in conjunction with the Report of the Innovation Summit Implementation Review (ISIG).

FASTS will be supporting the broad thrust of the recommendations in a "The Chance to Change", and urges all Member Societies and individuals to comment on the Report. When the Wills Review was released for comment, 2000 individuals and organisations responded. The weight of response contributed to its swift adoption by Government, and massive new funding flowing into the sector.

As previously advised by email, responses should be addressed to:
The Manager
Australian Science Capability Review
Department of Industry Science and Resources
GPO Box 9839
Canberra ACT 2601
or can be sent by email to: S.Clough@isr.gov.au
The report can be viewed in full at: www.isr.gov.au/science/review
There is not much time left to comment, but even an email message is useful weight in support.

Yours sincerely

Toss Gascoigne
Executive Director

"**The Chance to Change**" addresses the issues raised by FASTS this year in the "Ten Top Issues" list and a call for an additional annual investment of one billion dollars in Australian research. Between them, the Batterham and ISIG reports have addressed these issues.

The 14 items of the Billion dollar list follows, with the Batterham recommendations in italics:

1. **Double funds to the Australian Research Council large grants** **$100 M**
   Significantly increase funding for the Australian Research Council's competitive grants and related infrastructure activities..."

2. **Improve laboratories and libraries in universities** **$100 M**
   Expand the funding for university research infrastructure (RIBG)

3. **New scheme to provide major national research facilities** **$60 M**
   Commonwealth fund fifty per cent of the cost of creating new major research facilities on a competitive basis ... with the States/Territories, universities and commercial interests

4. **Retraining, HECS relief for new science and maths teachers** **$20 M**
   Provide 200 HECS scholarships for students undertaking combined science/education qualifications and 300 for students of the enabling sciences – maths/physics/chemistry

5. **Assist libraries with electronic subscriptions to journals** **$10 M**
   Libraries – develop a pilot scheme to test a national site licence concept between higher education institutions and publishers in an attempt to keep the price of journals down

6. **Measures to stimulate careers for younger scientists** **$50 M**
   Increase the number of Australian Postdoctoral Fellows-doubling would be appropriate

7. **Tax credits to stimulate innovative companies** **$250 M**
   Addressed in ISIG Report "Unlocking the Future"

8. **Additional funding for the CRC Program** **$50 M**
   Expand the CRC program to encourage greater SME access

9. **Priority environmental projects** **$40 M**
   Not specifically addressed in either Report, but being discussed in other Government areas

10. **Boost funding to science agencies (CSIRO, AIMS, AGSO etc)** **$70 M**
    Establish a pre-seed capital fund for universities, Innovation Centres and government funded research agencies, such as CSIRO, RDCs and CRCs. The ISIG recommendations to lift the rate of industry incentives for R&D by business will also benefit these organisations.

11. **New commercialisation stimulants** **$20 M**
    Expand the CRC program ... Establish a small number of Innovation Centres to provide support in commercialising research ...Establish a pre-seed capital fund ... review opportunities for researchers to better share in the benefits of commercialisation

12. **Increase funding to awareness programs, particularly in industry** **$20 M**
    Not addressed, but ISIG recommends a national broad-based public relations campaign to raise awareness of innovation

13. University salary equivalence for NHMRC and ARC fellowships $10 M

Recommendations for significant increases to funding for ARC grants opens possibilities

14. Overdue university salary increases (scientists' share) $200 M

Not addressed directly, but ISIG recommends a review of remuneration arrangements and incentive structures governing research activities

"THE TIMING IS EXQUISITE ..."

Nearly three quarters of all federal politicians have responded to an invitation to meet scientists and technologists for "Science meets Parliament" Day, to be held in Canberra on November 1.

The event is being organised by the Federation of Australian Scientific and Technological Societies (FASTS).

Professor Sue Serjeantson, President of FASTS, said that when the Prime Minister presented the Science Prize last week, he confessed to gaining "great joy and great understanding" from chairing PMSEIC (the Prime Minister's Science, Engineering and Innovation Council).

"The response from Parliamentarians to meet scientists has been overwhelming," she said.

"We have had 160 responses, with the vast majority accepting our invitation. Some can't make it on the day, but have requested subsequent meetings.

"This is a chance for scientists to affirm that support for research and development is an investment in the nation's future prosperity.

Parliament is currently considering its response to two major reports on science and research. Both the Batterham Review and the Report of the Innovation Summit Implementation Group recommend large increases in the national investment.

"The Government has announced its intention to make a statement in this area at the end of the year, and the Opposition is running strongly on 'Knowledge Nation' issues. And there is an election in the wind," Professor Serjeantson said.

"The timing is exquisite."

Professor Serjeantson said that wide media coverage over the fall of the Aussie dollar and the perception that Australia was being punished because it was not interested in science and research had helped stimulated interest.

About 200 scientists are expected to make the trip to Canberra to meet their local MPs. All Australian states and territories will be represented.

"This year we are emphasising the potential of science to create new industries and new jobs," Professor Serjeantson said. "It's a message for all Members of Parliament."

The two day event begins with Briefing Day on October 31. This features a National Press Club speech by Dr Neal Lane, science adviser to President Bill Clinton.

Dr Lane's visit to Australia is being sponsored by Rio Tinto Australian Science Olympiads, and FASTS gratefully acknowledges their assistance.

Professor Serjeantson said "Science meets Parliament" Day has the support of all parties.

Briefing Day will be addressed by the science spokespersons from each party, with Senator Grant Chapman, Senator Natasha Stott Despoja and Martyn Evans MP discussing issues from the perspective of their own partyroom.

FASTS CHOOSES NEXT PRESIDENT

Professor Chris Fell, Deputy Vice-Chancellor of the University of New South Wales is to be the next President of Australia's peak council for scientists and technologists.

Professor Fell will take up his position as President of the Federation of Australian Scientific and Technological Societies (FASTS) in November 2001, at the conclusion of the term of the current President, Professor Sue Serjeantson.

Professor Serjeantson said she was delighted Professor Fell was able to accept the position.

"Science policy has been under the microscope in Australia over the last couple of years, and FASTS has played a strong part in representing the views of our 60,000 members," she said.

"We have taken a lead role in calling for a greater national investment in science and research.

"This is a challenging national issue. Chris Fell is a scientist of the highest quality and experience. His links with industry will provide a valuable input to the Prime Minister's Science, Engineering and Innovation Council."

Professor Fell has been responsible for the research, international and information technology activities of the University of New South Wales since 1991.

Trained as a chemical engineer, he worked in industry before joining UNSW. Research in his group led to the establishment of the high technology company Memtech Limited. Professor Fell played a pivotal role in the birth of the CRC for Waste Management and Pollution Control.

He was elected at the Annual Council meeting of FASTS at the National Press Club today (Tuesday).

The full Executive of FASTS for 2000-2001 is:

President	Professor Sue Serjeantson (ANU, Canberra)
President-elect	Professor Chris Fell (University of New South Wales)
Vice-presidents	Ms Jan Thomas (Victoria University of Technology, Melbourne)
	Dr David Denham (President, Australian Geosciences Council)
Secretary	Dr John Rice (Flinders University, Adelaide)
Treasurer	Professor Snow Barlow (University of Melbourne)

INVITE A POLLIE TODAY!

Inviting a politician to an experimental site or laboratory may be one effective way of breaking down the barriers that separate Parliamentarians and scientists in Australia.

FASTS has written to the 185 scientists and technologists who participated in November's successful "Science meets Parliament" Day, to suggest that they should invite a politician to inspect a working science experiment.

It would be a "gumboots and labcoat" day, rather than an event devoted to grey suits, sanitised laboratories and best behaviour.

Scientists participating in SmP Day were surprised at just how interested the Parliamentarians were when they sat down to discuss science, and how concerned they are at seeking new industry-generating ideas, or solutions to Australia's environmental problems.

Seeing a working experimental site will help build awareness among politicians of the possibilities and limitations of science.

While scientists are comfortable dealing with abstractions and theories, many Parliamentarians prefer to see and experience the actual work. This helps them see its relevance, and to talk about the work when they get back to deliberations in Parliament House.

When Gary Gray (former national secretary to the ALP, and now Executive Director of the WA Institute for Health) briefed the scientists before SmP Day, he urged them to tell the Parliamentarians stories, anecdotes that will stick in their mind.

Parliamentary business is getting more and more technical, with Parliaments having to make major decisions on matters ranging from the internet, to genetic engineering, cloning, salinity, nuclear energy and the greenhouse effect.

Not many MPs have a background in science and technology, and need to build an understanding on these complex issues from the ground up.

Parliamentarians need access to good scientific advice, which is why FASTS organised appointments with three-quarters of all federal Parliamentarians to meet a pair of scientists in Canberra.

FASTS believes that decisions Parliamentarians make today will affect the way Australians live and work in the future.

One of the aims of 'Science meets Parliament' Day is to introduce Parliamentarians and scientists, so both feel more comfortable in seeking and offering advice.

It was a basic exercise in communication, with the ultimate aim of building closer links between science, technology and Government. The long term consequence could be a greater national investment in the sector.

We've suggested to scientists inviting Parliamentarians that they should
take photographs for newsletters, involve the media, and introduce the Parliamentarian to other on-site scientists who live and work in their
electorates.

The visits could be quite informal, and perhaps involve the Parliamentarian having a question-and-answer session with scientists on site.

These things will add value to the event for the Parliamentarians, particularly as an election must be held in 2001.

We have also suggested that they should check what procedures and protocols are in place with their organisation, as far inviting MPs is concerned.

PRESIDENT'S REPORT MEETING OF THE COUNCIL OCTOBER 31 2000

FASTS has made considerable progress in putting the matter of research and development on the national agenda for the next federal election Increasingly, the broader community is becoming convinced that private and public support for R&D is an investment in the nation's future prosperity. Of course, for any lobby group or peak body, it is impossible to demonstrate a direct relationship between the effort and the outcome. That said, we are seeing increased interest in our views by the popular press and by influential radio interviewers, such as Graham Richardson and Alan Jones, as well as by our traditional outlets such as the ABC and The Australian. The issue of investment in R&D is getting the attention of esteemed economists and the cartoonists; next, talk-back radio!

Our main task now is to maintain the momentum behind the Chief Scientist's report, "Chance for Change". We have seen many such reports, including the West report on higher education, sink without trace. Budget 2001 is the nation's last chance to change and we cannot let this opportunity be lost. Maintaining the momentum without antagonising the policy makers of today and of tomorrow is an interesting challenge.

I have watched other organisations, such as the Australian Medical Association (AMA), undergo serious divisions on the matter of style. The AMA is divided between those who prefer a cosy relationship with the Minister and those who think it is more effective to bleat from the side-lines.

During my Presidency I have attempted to steer the middle course, continuing the non-partisan record of FASTS that I inherited from my predecessors, Peter Cullen, Joe Baker and Graham Johnston. The Minister may not have ordered three bottles of champagne for us in the early hours of the morning, as did Dr Wooldridge for the former AMA team, but we have had the occasional quiet beer or breakfast with members of parliament and officers of ISR. This has not prevented our public comment on issues of importance to FASTS. FASTS is perceived, by one Cabinet Minister at least, as a 'good player'.

The first shock to the President of F ASTS is to fully appreciate how limited the resources truly are. Following an increase in fees this year, individual members pay a maximum of $5.00 per year plus 50 cents GST, tax deductible. While the individual subscriptions are modest, the total fee for any individual society can be substantial. I would urge societies to list the FASTS contribution as a separate item on personal subscription invoices. The subscriptions support an Executive Director and one part-time office manager. So we are dependent, in the most vulnerable way, on volunteer scientists in the area of policy development, on our sponsors, and on our membership societies, for sustainability.

When I looked at this situation, I decided that the immediate strategy had to be one of increasing the standing of FASTS. That is, our volunteers need to gain professional recognition for their contributions to the Federation and sponsors need to be assured that that are supporting a highly professional organisation deserving of their respect. Our members need to know that they are getting value for money and are proud to be associated with FASTS.

I cannot pretend that this is an easy or short-term task and it has been an ongoing one for my predecessors. Some of our most talented volunteers have not been given the recognition that they deserve in terms of their professional development, and this is of great concern to me. I want association with FASTS, whether as office bearers, as board members, or as member societies, to be keenly sought and also to be valued by those outside the organisation.

One indicator of progress in promoting the profile of FASTS is that sponsorship of FASTS' activities has increased significantly. Generous support of our events has been given willingly, and for that I thank our traditional and new supporters. Another indicator is increasing requests for private briefings to government officers on draft policy papers or to journalists on science- related media stories.

One other indicator, and the most important element for FASTS, is society membership. Essentially, over the past twelve months the membership status quo has been maintained, with two societies giving notice of withdrawal and CAPA joining. I'm truly delighted to have our young scientists join us and to have their fresh ideas put forward at Board meetings. We have made some progress in forging relationships with other organisations, such as the CRC Association, the Institution of Engineers, Australia; and the Australian Society for Medical Research. But we need to do more to recruit new corporate member societies.

Our achievements speak for themselves and I direct people to the list of Year 2000 activities undertaken by FASTS listed on our website. Other useful contributions, in terms of science policy and in promoting science, have been made through FASTS' ex officio membership of the Prime Minister's Science, Engineering and Innovation Council, PMSEIC. The non-Ministerial members have responsibility for developing agenda items for PMSEIC. I chaired the item Science and Technology in Fighting and Preventing Crime for the June 2000 meeting and am deputy chair of an item on Molecular Medicine for the November 2000 meeting of PMSEIC. In 1999, Peter Cullen co-chaired a PMSEIC working group on Salinity, and that work has continued to make important contributions to federal and state government policy on this issue.

The highlights for FASTS this year have been our two high-profile events, the Forum "Science & Technology in the Boardroom" and our second "Science meets Parliament Day". The success of these events is due to the stellar contributions of Toss Gascoigne and Robyn Easton. In addition, Toss is responsible for the strong media position of FASTS, working hard to maintain personal contacts, submit press releases in a timely way and ensure the ready availability of commentators.

I would like to thank the members of the Board, of the Executive and of the Policy Committee for your terrific support during the year and to say that it is a privilege to be your President. I hope the next twelve months, and the election budget, realise some returns for our efforts.

Sue Serjeantson AO PhD.

STUFF

A student at Eagle Rock Junior High won first prize at the Greater Idaho Falls Science Fair, April 26. He was attempting to show how conditioned we have become to alarmists practicing junk science and spreading fear of everything in our environment. In his project he urged people to sign a petition demanding strict control or total elimination of the chemical "dihydrogen monoxide."

And for plenty of good reasons, since:

1. it can cause excessive sweating and vomiting
2. it is a major component in acid rain
3. it can cause severe burns in its gaseous state
4. accidental inhalation can kill you
5. it contributes to erosion
6. it decreases effectiveness of automobile brakes
7. it has been found in tumors of terminal cancer patients

He asked 50 people if they supported a ban of the chemical.
Forty-three (43) said yes,
six (6) were undecided,
and only one (1) knew that the chemical was water.

The title of his prize winning project was, "How Gullible Are We?"

He feels the conclusion is obvious.

From: Joseph Harper joeha@microsoft.com
And here is the same story again with a student from another school: (?)

Idaho Falls, Idaho -- Dihydrogen monoxide causes thousands of drownings each year, leads to excessive sweating and vomiting and contributes to land erosion. And there's nothing anyone can do to stop it.

Fifteen-year-old Nathan Zohner made people aware of that fact by proving in his science project on critical thinking skills just how vulnerable people are.

Newspapers, magazines, radio and TV stations, universities, even members of Idaho's Congressional delegation have been calling Nathan in recent weeks to talk about the project that won the Greater Idaho Falls Science Fair in April, the Post Register reported Wednesday.

The project asked 50 ninth graders if the compound called dihydrogen monoxide should be banned. Forty-three said yes and six were undecided. Only one person was able to tell Nathan dihydrogen monoxide is just another name for water.

The Skyline High School sophomore said he just wanted to show how easily people can be misled.

"Some of my friends could have done this. It wasn't that extraordinary. It was just a simple science project that kind of blew up," he said.

Nathan got the idea after his father, Steven, a nuclear scientist at the Idaho National Engineering and Environmental Laboratory, brought home a flier from an anonymous author describing the "dangers" of dihydrogen monoxide.

A mathmatician, a physicist, and an engineer were all given a red rubber ball and told to find the volume. The mathmatician carefully measured the diameter and evaluated a triple integral. The physicist filled a beaker with water, put the ball in the water, and measured the total displacement. The engineer looked up the model and serial numbers in his red-rubber-ball table.

If it was my company: The engineer tried to look up the model and serial numbers, couldn't find them, so told his manager that it's just not going to work.

Q: if both a bear in Yosemite and one in Alaska fall into the water
which one disolves faster?
A: The one in Alaska because it is Polar.

ARTICLES

SCIENCE MEETS PARLIAMENT – 2000

On behalf of ASL, I recently attended the annual FASTS "Science Meets Parliament" workshop in Canberra. It was a great opportunity to learn more about how to grab the attention of politicians, hear some distinguished speakers and meet outstanding scientists from around Australia. During the first day, we heard an address from the Chief Scientific Advisor to Bill Clinton - Dr Neal lane - who outlined how the USA invests in science and technology. We were very envious of course - I sat next to a woman from NASA, whose budget sounded like the entire GDP of Australia! There were other discussions and presentations from politicians and aides, who told us how to "lobby" and grab the politicians' attention. Barry Jones and the Chief Scientist, Dr Robin Batterham, also addressed us. Dr Batterham has produced a report - "The Chance to Change" and "Innovation, Unlocking the Future" - which has numerous recommendations regarding how investment in science can be most effective. These recommendations include increasing ARC grants and postgraduate scholarships – some fundamental essentials if Australian science is going to continue and if we are to avoid the 'brain drain'.

On the second day, we were each teamed up with another scientist - I was with Dr Michael Burton - a very lively and engaging person, who recently shared in the Eureka prize for science communication with the "Science in the Pub" series - something which various ASLers have contributed to. We spoke with Tony Lawler MP (National Party) for half an hour (after taking just as long to find our way through the maze of Parliament House!), and emphasised to him the difficulties in making management decisions in the absence of science. We also discussed how even small investments in science can provide large returns in the future - he seemed responsive and sympathetic to our cause, as did all the politicians.

At the end of the day, I felt this was a very worthwhile exercise, and one in which ASL should remain involved with - even if it does not specifically relate to water issues per se. FASTS should be congratulated for putting this together and being able to have so many scientists and politicians talking to each other on the one day. If you would like to read more, then visit the FASTS website at http://www.FASTS.org.

Deborah Nias

MARINE AND FRESHWATER RESEARCH

Yours electronically

Have you explored the *Marine and Freshwater Research* website recently? Even if you have, give it another look – it's updated frequently. The URL is given below – but, in any case, there is a direct link from the ASL website to the journal (and there's a direct link from the journal website to the ASL home page.)

The most recent news is that **Personal Online Subscriptions** are now available. Many libraries already subscribe to the electronic journal, but if you prefer the convenience of electronic access to the journal for your personal use, this is now an option; subscribers have access to the electronic form of all papers published in the journal since 1997. A combined personal electronic+print subscription is also available.

If you want to try before you buy, check out each month's free featured review on the web, spotlighting a review or viewpoint article that has been published in the journal.

Our home page also leads to abstracts of all papers that have been published during the past 6 years (in 1995, what did Ian Bayly say is distinctive about the zooplankton of large lakes in Australasia, Antarctica and South America?; in 2000, why was Justin Brookes using fluorescein diacetate?) Of course, subscribers to the electronic journal can view the full papers, but the free abstracts are better than nothing.

You can also check on the titles of papers in press. At the time of writing this, the list includes Gene Likens and Ian Webster promising their ponderings about watersheds ... er ... catchments. When will these be published? – use our email 'Early Alert Service', which will automatically send you each Table of Contents several weeks before the issue is despatched.

Prospective authors can find full Instructions on preparation and submission of the manuscript via the website. It really is worth checking through these before submitting the paper.

Is there anything you'd like to see on the *Marine and Freshwater Research* website that isn't yet there? If so, let us know. We should like to see more of your best work appearing in *Marine and Freshwater Research*.

ann.grant@publish.csiro.au

http://www.publish.csiro.au/journals/mfr/

MODEL WATER MANAGEMENT FRAMEWORKS

The Council of Australian Governments (COAG) water reform agenda has stimulated State governments around Australia to develop new water management programs which incorporate a variety of innovative and potentially effective approaches.

I believe this provides Australia with the opportunity to provide a lead to other nation states, particularly those third-world countries committed to both (a) democratic decision-making processes, and (b) sustainable management of natural resources.

I suggest that a model water management framework be developed incorporating some of the best elements from Australian State programs, and that this model framework be made accessible through an internet site.

Is anyone interested in this idea? If so, could you contact me with a view to collaborating on the development. A little more detail on my ideas can be found at: http://www.netspace.net.au/~jnevill/freshwater.htm

Jon Nevill

Jon Nevill

The gap between knowing and doing.

I don't need to remind most ASL members that many of Australia's inland waters are degraded, and are continuing to degrade. *Why* is this happening, in spite of the massive water management programs backed by State governments and the Commonwealth?

We are talking about complex ecosystems, and complex management programs. There are no simple explanations. However, in understanding why degradation continues in spite of our best intentions, we *must* examine the link between strategic visions and effects on the ground. That 'link' is the *processes* we use to manage our water ecosystems. Something is going wrong...

I have written on this subject several times - and I have written about issues which are all-too-familiar to practitioners in this area. I recently had a paper rejected by the *Australian Journal of Environmental Management*, on the grounds that: "much of what it contained would be well known to most environmental professionals".

Yes, the individual issues themselves are often conceptually simple, *yet there continues to be a major gap between what we know, and the management processes which we put in place.*

There are many examples: cumulative effects, representative reserves... But let us take the link between surface and groundwater as case in point. Most of the time, our rivers are fed by groundwater, not by surface runoff, snowmelt, or direct rainfall. This is not rocket science; it's pretty obvious. We know that large Australian rivers generally flow all year round, and of those 8766-odd hours, we know that it might be raining somewhere in their catchments for maybe 400 or 800 hours, in a good year. So we know that, generally speaking, our rivers are groundwater-fed for most of the time.

Prior to recent water reforms, groundwater and surface water flows were managed with little coordination, and the legacy of this mistake remains today. For example, until the new *Water Management Act* was passed by the Tasmanian government in 1999, groundwater and surface water

flows were managed by different State government departments, under different pieces of legislation and policy, for different objectives and within different government programs.

In some locations around Australia, groundwaters have been so heavily used that springs have dried up, along with their associated local ecosystems. Where aquifers are heavily used, and these aquifers feed rivers and streams, streamflow must be affected. Pretty obvious stuff.

The key question to ask is: *do management processes reflect this knowledge?* The answer, generally, is "no". While the management literature of several Australian States reflect concern over the issue, *the only State to actually implement the concept of water plans handling BOTH ground and surface flows is New South Wales*. And even here, the concept has not been widely or enthusiastically implemented.

How can we explain this gap between 'knowing and doing'? Part of the explanation lies in the assumptions underpinning our management processes, *and the way we stick to these assumptions long after their validity comes under serious scrutiny*.

Until recently, the water management frameworks put in place by State governments around Australia contained at least seven important assumptions:

- although very large dams were subject to environmental assessment, it was assumed that *small and medium-sized dams* needed only cursory assessment on a case by case basis - no assessment of the catchment's capacity to support increasing numbers of small dams was thought to be necessary. In other words, it was assumed that "the little ones don't matter";
- similar assumptions were made concerning *small users* of surface and groundwaters, and the *construction of levee banks*. These escaped catchment-based strategic assessments on the basis that "little ones don't matter";
- it was assumed that landholders should, by and large, *be allowed to place dams across small watercourses*, on the basis of generally cursory case-by-case assessments and licensing arrangements - ie: that it was unreasonable for State water agencies to ask landholders to pay the additional costs involved in off-stream dams;
- it was assumed that the harvesting of surface flows *away from watercourses* did not need to be controlled - that these flows comprised a minor proportion of total surface flows and that their harvesting did not matter to overall catchment flows;
- it was assumed that the plants and animals living in the streams would look after themselves, and that no particular attention was needed regarding the provision of a *guaranteed environmental flow* to keep them alive;
- it was assumed that, while the need to protect biodiversity necessitated the development of systems of *representative reserves* conserving key examples of terrestrial and marine ecosystems, it was *unnecessary and impractical* to apply the concept of representative reserves to freshwater ecosystems; and finally
- it was assumed that *groundwaters and surface waters were somehow separate*, and could be managed independently.

These are the central assumptions which have led to the degraded, and still degrading state of many of Australia's major freshwater ecosystems. While the COAG[i] water reform agenda signalled the death of some of these assumptions (concerning environmental flows, for example) others live on, to a large extent unscathed by the agenda. I believe that, while many of these assumptions were once correct, this is no longer the case, and it is now dangerous to make *any* of these assumptions in the development of State water management frameworks. I argue that, as far as the freshwater

ecosystems of Australia are concerned, it is a key challenge of the next decade to reverse *all* of these assumptions.

Reference: "Freshwater Biodiversity" on the *Only One Planet* website: http://www.netspace.net.au/~jnevill/ .

Council of Australian Governments

REPRESENTATIVE AQUATIC RESERVES

Many ASL members will be familiar with the development of comprehensive, adequate and representative reserve systems in terrestrial environments. This terminology (and the process behind it) is currently being applied to the marine environment, driven primarily by concerns relating to the protection of biodiversity, and the benchmarking of sustainable management.

Six of Australia's eight State and Territory jurisdictions are committed, by various policy statements, to the development of representative freshwater reserves. The exceptions are South Australia and Tasmania; however both these States are currently developing wetland strategies, providing an opportunity for commitments to be made in this direction in the near future.

While these commitments have been made over the last decade, programs to develop such reserve systems, in the most part, have remained un-funded. There is the opportunity, perhaps, for ASL to play a part in providing advice on their development - which may well take place over the next year or two.

Jon Nevill, an ASL member currently based in Melbourne, has offered to coordinate the development of a possible draft ASL policy on representative aquatic reserves.

HOW MUCH IS AN ECOSYSTEM WORTH?

Stanford Report, December 1, 2000, Finding a market for 'ecosystem services'

It's easy to put a price tag on timber harvested from forests or copper mined from the ground, but can we put an economic value on the less tangible services ecosystems provide, such as water purification and flood control?

A group of 30 scientists, lawyers, conservationists, economists and policymakers recently came together at Stanford to discuss novel ways to market "ecosystem services" with the ultimate goal of protecting the ecosystem itself.

"The importance of ecosystem services has been recognized since the time of Plato," said Jim Salzman, an environmental law professor at American University who helped coordinate the two-day Stanford workshop.

According to Salzman, ecosystem services are the processes through which natural systems support human life by purifying air and water, detoxifying and decomposing waste, renewing soil fertility, regulating climate, preventing droughts and floods, controlling pests and pollinating plants.

Unfortunately, he noted, most people take these services for granted because they are free.

"We explicitly value and place dollar figures on 'ecosystem goods' such as timber and fish," Salzman said, "but the services underpinning these goods almost without exception have no market value -- not because they are worthless, but rather because there is no market to capture and express their value directly."

Watersheds may be among the most marketable of all ecosystems, according to several panelists, because they provide essential services such as water purification and flood control.

"There's a clear demand for improving water quality, and, as a result, a clear demand for protecting watersheds," said workshop organizer Barton "Buzz" Thompson Jr., vice dean of the Stanford Law School and the Robert E. Paradise Professor of Natural Resources Law.

Thompson pointed to the New York City water department's 1996 decision to allocate $1.5 billion to preserve the Catskill and Delaware watersheds rather than spend $6 billion to construct a new water treatment system.

New York City was able to convince its taxpaying customers that the investment was worthwhile, Thompson noted, by demonstrating the cost-effectiveness of acquiring and protecting watershed land north of the city.

Since then, he said, New Yorkers have gained a better understanding of other services provided by watershed conservation, such as the protection of wildlife habitat.

"Can we generalize from New York City's experience?" asked Thompson.

The answer, he said, is yes. Municipalities such as New York supply 85 percent of the drinking water in the United States, and most are faced with an aging infrastructure that could require a total of $1 trillion to upgrade and maintain. Therefore, he argued, watershed conservation could become a more attractive option for cash-strapped local agencies.

Thompson pointed out that Salt Lake City, Seattle and Portland, Maine, already have begun investing in watershed protection projects.

Larry Goulder, an associate professor of economics at Stanford, chaired a working group on flood management at the workshop. Goulder's group concluded that the U.S. Army Corps of Engineers should reduce its reliance on dams and levees to control floods in favor of paying farmers and other landowners to set aside property in flood-prone areas.

Other working groups evaluated alternate ways to create ecosystem markets and to develop tools that will aid scientists in predicting the kinds of services an ecosystem will provide.

Results of the workshop will be published in a special issue of the Stanford Environmental Law Journal next spring to be authored by Thompson, Salzman and Gretchen Daily, a senior research scientist in Stanford's Department of Biological Sciences.

http://www.stanford.edu/dept/news/report/news/november29/watersheds-1129

BY MARK SHWARTZ

LAND COVER CHANGE REPORT AND DATA SETS RELEASED

BRS recently released "Land cover changes in Australia", a report on the results of the collaborative BRS - State agencies' project on the remote sensing of agricultural land cover change 1990/91-1995 which contains an independent assessment of the reliability of the data. The data sets developed for the project are now available on CD.

The study shows that in 1990/91, 38 percent of Australia's more intensively used agricultural zone was covered by woody vegetation. About 92.5 million hectares of woody vegetation has been cleared in this area since European settlement. Analysis of the satellite data showed that 1,212,620 hectares were cleared for cropping and grazing, urban expansion and infrastructure development over the period 1990/91 – 1995. Annual rates of decrease in woody vegetation, calculated for use in the 1997 and subsequent National Greenhouse Gas Inventories, show that 292,030 hectares were cleared for agriculture each year over this period.

The report details the remote sensing methods used to map woody vegetation cover, detect land cover change, the methods used to check each pixel of change identified, quality assurance procedures, the types of vegetation cleared and estimates of above ground biomass lost through clearing. An independent reliability assessment was undertaken by RMIT University and Geoimage. There was no significant difference between the States' and consultants' estimates of change for 97 percent of the scenes examined. The assessment showed that the processes used to detect land cover change were repeatable, and gave consistent and reliable results.

The report and information about obtaining the data sets (available at 25 m, 100m and 250 m resolution) is at www.brs.gov.au/land&water/landcov/alcc_report.html. Some data will be available for viewing via http://aedol.anu.edu from mid November.

THE NSW FISHERIES SCIENTIFIC COMMITTEE STUDENT GRANTS 2001

Increasing numbers of NSW aquatic animals and marine plants are threatened by human activities. Many have become so rare they are considered to be in danger of extinction. We need your help to identify species and sites at risk, and to supply the information to assist with their management.

The NSW Fisheries Scientific Committee is offering a limited number of competitive, one-off, short-term student grants, up to a value of $1500.

The grants are ideal for Honours and Masters students enrolled at NSW Universities. They are designed to encourage research projects on the conservation and management of protected, threatened and endangered marine and aquatic species (but not fisheries species). This includes many species of fish, invertebrates and marine plants. To be considered the project must be completed during 2001 and administered through a NSW University. Applications can be received any time, but before the end of 2000 or early 2001 is best for the current funding cycle.

For more Information, application forms and a list of possible projects contact your university Research Office, visit our web site www.fsc.nsw.gov.au or phone Kylie Russell on 02 4916 3817.

AUSTRALIA'S BEST ENVIRONMENTAL INFORMATION RETRIEVAL FACILITY

The Federal government have announced that they will be substantially funding, via the Natural Heritage Trust, the development of Australia's first demonstration "Aggregated Information System" for environmental information coordination.

As part of this development it is now possible to query multiple databases and environmental internet sites using the SINGLE ACCESS POINT http://au.riversinfo.org/ais_load.html

Go check it out.

FLOODED FORTUNES

Dams and Cultural Heritage Management

WCD World Commission on Dams) Secretariat: Human civilisation has evolved along rivers. Dams, by definition, alter the flow patterns and use of rivers. The resulting friction between large dams and equally valued cultural heritage has sparked intense and escalating controversies in many corners of the world, pitting archaeologists against cities, farmers against governments, nations against neighbours:

* Egypt's Aswan High Dam triggered an international archaeological salvage operation of the ancient city of Nubia that is unparalleled in world history. * When Portugal's Coa Dam construction unearthed Paleolithic engravings, subsequent controversy and protests led leaders to abandon it, despite $150 million already invested. * In the past six years, China's list of cultural heritage sites potentially affected by the massive Three Gorges Project has grown from 42 to 1,300. * Native American tribes on the Colorado and Columbia Rivers threaten legal action over operation of large hydroelectric dams that threaten their ancient burial grounds and sites. * Reservoir site surveys in India's Narmada Valley uncovered hundreds of archaeological digs ranging from the Lower Palaeolithic age to historic temples and iron smelting sites. * During a historic low-water mark, Panama's post-inundation assessment of impacts of Madden Dam revealed thousands of newly exposed artefacts on the surface. * Now, the global news media's white-hot spotlight is focused on Birecek Dam in Turkey which is flooding remnants of a 2,000 year old city, Zeugma, with one of the world's richest collections of Roman mosaics and considered to be "a second Pompeii."

To tackle this issue, the World Commission on Dams, recognised for its independent, balanced, comprehensive and peer-reviewed research, has attempted to study the issue and collaborate with a range of partners including the World Archaeological Congress (WAC). The Commission's findings and recommendations remain confidential until the Final Report is launched November 16. But today, in the interest of transparency, it presents some of the publicly available evidence it has unearthed regarding cultural heritage management and dams, to help both sides of the debate articulate the problem and seek productive and consensus-based solutions.

The debate hinges on difficult and sensitive value-based questions, such as: What exactly is cultural heritage? Is cultural past a human right? Do all dams impact culture? Should the potential worth of undiscovered sites keep new dams from being built? Are impacts of dams on cultural heritage irreversible? What matters more, the "dead" legacy of the past or the immediate "living" demands of the present? What incentives are there for improvement? Can all cultural impacts be managed or are dams and heritage irreconcilable?

The Commission can't resolve all these issues, now or in November. But current research, including a recent WAC workshop at the University of Florida, has uncovered clues, and approaches, that may shed needed light. With advance plans, and by learning from past examples, countries, communities and international agencies, have the means to resolve them on their own.

In shorthand, cultural heritage is the unique social fingerprint, the tangible ties between humans and their past. These expressions include: distinct and sacred elements of the landscape, invaluable ancient or modern human artefacts, critical plant and animal remains from human activities, sacrosanct burial grounds or revered rural or urban buildings. They are the clues to our distant and not-so-distant legacy.

Yet the density, location and nature of these clues rarely emerge until, and some cases, only because, a dam, or other development construction has begun, leading to a dilemma. While nations should preserve valuable cultural and archaeological resources before building dams, dam building may be what uncovers the very resources worth protecting in the first place.

This helps explain the dilemma, but doesn't explain it away, or make it less urgent. Indeed, authors Prof Steven Brandt and Prof Fekri Hassan reported on the February Dams and Cultural Heritage Management (CHM) workshop in Gainseville Florida, with the sobering conclusion that: "The magnitude of loss from different parts of the world wherever large dams are constructed is staggering. The impact of large dams on cultural heritage is both long term and far-reaching. It is also irreversible. The situation must be regarded as a crisis of unprecedented dimensions."

Yet facing competing demands and limited budgets, what can be done by governments, now? The quick answer would be to proceed with extreme care. But that's easier said than done. The workshop documented how countries rarely have explicit CHM policies for dam projects. Of those that do, few enforce them. For example, archaeological surveys have been done for only 25 of Turkey's 298 dam projects. Of those, five have organised, systematic rescue work.

There are signs of hope. In 1954, potential adverse impacts that the Aswan High Dam on Nubia were dramatic enough to change forever the practice of archaeology. An international rescue operation led to decades of intensified research not just in the vicinity of the dam, but throughout Egypt. This, in turn led the rewriting of the prehistory of the Nile Valley. On a global scale, what the then Director General of UNESCO called "a task without parallel in history" led to the launch of numerous other operations.

And values differ. Studying Tarbela Dam in Pakistan, WCD learned how authorities, in consultation with religious leaders, ceremoniously moved sacred shrines out of the flood area. Elsewhere it learned that a Spanish community wanted their church to remain in the reservoir as a monument.

But in some cases no 'management' is possible. Last August, in Geneva, WCD sponsored a meeting with representatives of affected communities on 'Dams, Indigenous Peoples and Ethnic Minorities.' It discovered that Epupa Dam, proposed on the Cunene River between Namibia and Angola, threatens 160 ancestral graves. As observer Dr. Bollig explained, "To the Himba, graves are not simply an accumulation of stones under which some bones rest, they are places laden with emotion and memories." Place forms their basis of political rank and order, establishes land ownership, allows religious ritual and orientation. Because a place, by definition, cannot be relocated, CHM of dam construction may prove irreconcilable, and lead to other alternatives.

Not surprisingly, developed countries have more legal, organisational and financial capacity to cope with discoveries than many developing countries, as shown by this contrasting tale of two sites:

Yacyretá Dam inundated 80,000 hectares of land, 80% in Paraguay and 20 % in Argentina. Between 1985 and 1988 a World Bank-funded study to evaluate the cultural impact covered an area of 4,916 ha, and located a number of archaeological sites. But Argentina's study work and rescue operation suffered from funding shortage and bureaucratic management; Paraguay's rescue research began only after the flooding had already started and, as a result, most of the sites were by then under water.

By contrast, even before 1985 legislation, Portugal gave formal political recognition to its cultural heritage through systematic consideration in projects that impact the landscape, including dams. For example, Alqueva Dam was suspended in 1979, until surveys examined archaeological impacts upstream and down. Today, a year before submergence, Portugal has

completed or executed all rescue and mitigation activities in the inundation zone, planned an archaeological museum, and constructed a memory center which includes an ethnographic museum, a cemetery to which will be transferred the remains from the impoundment area.

Most countries document a gaping shortage of qualified CHM personnel, adequate facilities and infrastructure, an urgent need for local capacity building, and training that integrates CHM assessment with environmental assessment (EA) when looking for potential impacts.

"There is a two-way tension between saving the past and providing for the present," said Madiodio Niasse of the WCD Secretariat. "Archaeologists don't face the political demands for water or electricity; governments don't always see the potential value of cultural resources until too late. But this may be a false choice. Both parties can plan ahead, then work together. Rescue operations don't just preserve what may be lost; they deliver real and undiscovered benefits to all in the same way, and perhaps the same scale and richness, as dams."

The Portuguese collectively recognised these benefits when the country abandoned the Coa Dam even after investing US $150 million into it. To be sure, not every country can afford to. And even where studies are required, and cultural heritage should be covered, oversight and compliance may slip through the cracks between social and environmental impact studies. This oversight is attributed to: built-in biases toward only biological or non-human factors; the poorly understood link between human behaviour and environmental change; ignorance of how deeply society values cultural heritage resources; lack of publicised CHM data apart from a few famous sites; a scarcity of techniques designed to deal with cultural heritage in environmental assessments. Turning to global guidelines is not always the answer. The Florida workshop found most international organisations lack any explicit standardised policies toward cultural heritage, including the Asian Development Bank, Inter American Development Bank, Japan Bank for International Co-operation nor USAID. The notable exception is the World Bank's 1986 Cultural Property policy, currently under revision, which has specific provisions aimed and protecting cultural resources in Bank-funded projects, including dams.

"Perhaps the most distressing political finding from the workshop," said Niasse, "is that some world organisations best positioned to fund, foster and improve cultural heritage management within poor nations, are most in need of CHM awareness and capacity building themselves."

The dilemma is not only over capacity for Turkey, which faces international criticism for "sacrificing forever" a potential UNESCO world heritage site on one hand, or the immediate basic demands for water or power by its citizens on the other. It also involves priority. To emerge from the crisis, it must overcome logistical, political and economic barriers. Among the practical considerations in its Final Report the Commission may consider are logistics, politics and economic incentives.

First, logistics: Not all agree that upstream flooding from dams impacts cultural resources forever. The critical impact zone is the "bathtub ring" area where fluctuating water levels scour and erode the shoreline. The deep-water zone may be the most protected from impacts and therefore the best location for preservation. In some existing reservoirs already built without attention to CHM, underwater archaeology is a viable choice for assessment of and access to submerged archaeological and cultural resources. In this regard, one Turkish local governor noted: "The dam [Birecek] only has a life span of 50 years. So our grandchildren will be able to see the part that is being flooded this month."

That said, submergence of archaeological resources is not a viable mitigation alternative, as it is more cost efficient to excavate and manage these resources before submergence. Mud-based

resources are most at risk from exposure to water. Gravesite disturbances often cause irreversible emotional rather than physical impacts that cannot be mitigated. Lastly, dredging of reservoirs can have negative irreversible impacts on the inundated resources.

Second, politics: In theory, a quick ideal solution may seem to be vigorous enforcement of international guidelines and agreements such as a permanent UNESCO World Heritage Site declaration, protection or moratorium. But if the "stick" of legal or regulatory sanctions are too severe, they may actually create built-in disincentives to survey, explore, discover, excavate or protect cultural heritage. "Say you're a developer or regulator of a project and a worker brings you a bone, statue or clay pot that may unlock a gap in human evolution," said Niasse. "Your first impulse should be joy, not fear that this discovery will lead to demands for more money, mitigation, time to explore and thus controversy and indefinite delay. You need incentives to call in experts, not hastily bury the bone and keep quiet."

Which leads to economics: Financial incentives come from long term revenue potential generated from discovery of cultural heritage. Small grants or rewards from national and world organisations may tip the scales better than threats of sanctions and project moratorium.

Also, a percentage of total dam construction costs can be allocated for CHM, either incorporated into Environmental Assessment budgets or considered as a separate line item in project budgets. Funding at present is frequently inadequate even for stop-gap and partial measures to "rescue" endangered cultural heritage. No one can remedy the current inadequacies in developing countries without earmarking part of the project resources to CHM.

"The overall picture of CHM and dams right now is dark. But we can light candles to reveal a path forward. From Portugal's Coa, to the Grand Canyon's Native American ruins, to Egypt and Sudan's Nubia along the Nile, each country went in looking to generate electricity and came out with ways to generate millions from tourism and museums. By enriching humanity, countries also enrich their coffers with funds to offset the opportunity costs of delay, or match the economic revenues of a dam."

The World Commission on Dams was established in 1998 to assess one hotly debated aspect of development: which, how, where and why the earth's 45,000 large dams have worked or failed to deliver. Chaired by Kader Asmal, South Africa's Minister of Water Affairs and Forestry under Nelson Mandela, and now education minister, the Commission consists of 12 people - civil engineers and NGOs, chief executives, academics and government officials - who represent all sectors of development. As a group, the Commission has listened carefully to both sides the water and energy resource debate in cities like Colombo, Sri Lanka; Sao Paulo, Brazil; Cairo, Egypt and Hanoi, Vietnam. It analysed seven dams in the context of their basins under a microscope; studied national experience with dams in China and India; evaluated trends through 17 themes and a cross-check survey of 150 dams world-wide; and absorbed 900 submissions from afield. Based on the distilled evidence from this global review, the WCD will - in a major launch starting 16 November 2000, in London - issue a report with significant implications for future water and energy development. It will also include criteria and guidelines for construction, operation, overhaul and decommission of dams or alternatives. No natural resource, even gold, is more precious to any given country than its fresh water. And no public tool has been more widely and controversially used for parting - and imparting - those waters, than dams. Decisions over dams are decisions over sanitation. Crops. Drinking water. Health. Electricity. Fisheries. Flood management. A nation's destiny. Dam building is a $42 billion industry that forces 4 million people per year - or 11,000 each day - from their homes. Why? To what end? For whom? What are costs and benefits of this? Into such questions the WCD plunges, and this second feature story, focusing on the current public

evidence on Cultural Heritage Management, is only one thin slice of the complex dams and development picture.

WCD KNOWLEDGE BASE www.dams.org

- Dams and Cultural Heritage Management, Working paper submitted to the WCD by Dr. Steve A Brandt and Professor Fekri Hassan (World Archaeology Congress)
* Brazil Case Study- surveys focused on the sector above the town of Tucurui that was to be flooded by the dam. These surveys were carried out in 3 stages between 1977 and 1984, identifying and studying 34 sites, most of which were classified as ceramic habitation sites.
* Contributing paper to Thematic Review 1.2: emphasises the meaning of ancestral graves to the Himba tribe. To this tribe graves are not just stones - not the physical fact but the connection between graves, family history and community's system of land tenure and decision-making. Pp9
* Glommen & Laagen Norwary Case Study- chapter 3.9 NEWS REPORTS, EXAMPLES, JOURNALS
* "We did everything we could to preserve the site, but no one was listening...Energy policy is more important than cultural and historical projects." - Turkish museum official, regarding Birecek Dam "Unfortunately, all infrastructure projects are interventions with the physical system, and in some cases that does affect cultural or historic sites. The bottom line is to put in a sincere effort to minimise loss. When that's not possible, you have to take precautions either to move what's there, or at least to establish a complete documentation of what is being lost." (http://www.nytimes.com/library/world/europe/050700turkey-rome.html)

* "The Participants of The Society for Africanist Archaeologists Conference held in Cambridge, England, 12-15 July 2000 are alarmed at the magnitude and extent of the damage and loss to the cultural heritage of Africa caused by the construction of dams and other development activities. They urge governments and international institutions to take prompt action to develop long-term Culural Heritage Programs to rescue Africa's threatened Cultural Resources, to strengthen the capacity of African universities, museums and other cultural heritage organizations , to enforce standard procedures of good practice, to inform and engage local communities in all aspects of Cultural Heritage Management, and ensure speedy publication and dissemenation of all information recovered."

* The Ilisu Dam in Anatolia, Turkey, will flood 52 Kurdish villages and 15 towns, destroy the archaeological city of Hasenkeyf. A report produced by Environmental Resources Management, listed the destruction of archaeological remains at the 'epicentre of western civilisation' as one of the dam's risks. http://www.hasankeyf.org/eng/index.htm

* It is estimated that 1,300 known archaeological sites and hundreds other yet to be discovered that are threatened by the Three Gorges Dam on the Yangtze River. http://www.archaeology.org/online/news/china.html

* Two hydroelectric projects in India, the Nagarjunasagar and the Srisailam, submerged relics of archaeological significance from ancient and medieval India including temples of typical Chalukyan style. But UNESCO and foreign governments collaborated in transferring the archaeological remains to safer sites. (Sarma, I.K. 1984. "Some aspects of salvage archaeology in Andhra Pradesh, " in: Itihas - Dr. N. Ramessan's Commemoration Volume, 1984.) and (Ramaswami, N.S. 1984. "ASI: An incredible feat." The Week, Feb. 12- 18, 1984, p. 44-45) CONTACTS/ LINKS The World Archaeological Congress (WAC) http://www.wac.soton.ac.uk/ was established to recognise the historical, social, and political role of archaeology. A WAC Task Force has been formed to address the effects of dams and reservoirs on cultural heritage sites. The Convention for the Protection of the World Cultural and Natural Heritage, United Nations Educational, Scientific, and Cultural Organization (UNESCO) http://www.unesco.org/whc/world_he.htm requires signatories to adopt general policies; establish appropriate organisations and services; and develop legal, scientific, and financial measures for

protecting and conserving cultural heritages. The World Heritage List, UNESCO http://www.unesco.org/whc/opgulist.htm encourages protection and to date includes more than 360 cultural sites of exceptional interest and universal value. In 1960-64, a UNESCO international salvage excavation project was carried out in the reservoir area of the Aswan High Dam in Upper Egypt. Project: http://www.unesco.org/culture/laws/works/html_eng The World Commission on Culture and Development (WCCD), UNESCO and UN http://www.unesco.org/culture/development/wccd/html_eng/index_en.htm was established jointly by UNESCO <http://www.unesco.org> and the United Nations in December 1992. It produced the report, Our Creative Diversity, on the interactions between culture and development. International Council on Monuments and Sites (ICOMOS) http://www.icomos.org/ICOMOS_Main_Page.html is an international non-governmental organisation of professionals, dedicated to the conservation of the world's historic monuments and sites. Europe has a national policy on cultural heritage which involves 27 countries. www.culture.coe.fr/pat/eng/

Draft for Comment (November 2000)

AUSTRALIAN WETLAND FORUM

A strategy to stop and reverse the loss and degradation of Australian wetlands

Prepared from information presented at the Australian Wetland Forum Darwin 8 July 2000

The Australian Wetland Forum was jointly organised by the Australian Society for Limnology (ASL) and the World Wide Fund for Nature (WWF-Australia) with support from Wetland Care Australia (WCA) and the National Centre for Tropical Wetland Research (nctwr).

The Forum

This strategy to stop and reverse the loss and degradation of Australian wetlands was developed by the inaugural Australian Wetland Forum held on 8 July 2000 in Darwin. The Forum had an open invitation and was encompassed within the Australian Society for Limnology's (ASL) annual congress held from 7-10 July 2000. The aim of the forum was to comment on policies, programs and actions that influence the future of Australian wetland conservation, management and science.

The Forum was structured to encourage communication between wetland stakeholders across Australia and built on recent fora such as the Wetland Care Australia meeting held in late-1999. The Forum focussed on linkages between wetland scientists and conservationists, as expressed by the respective memberships of ASL and WWF, and provided a vital link with community-based wetland groups, as expressed by the participation of Wetland Care Australia.

The Forum included expert talks on a variety of topics. Discussion sessions following the talks were used to identify priority issues and actions for inclusion in the strategy. In this respect the strategy is a consensus-based document that outlines some of the steps for wetland conservation and management in Australia for the next decade. There is no pretence that the strategy is complete – this could not be achieved in a one day forum. Much else needs to be done and many other actions are required. Here we present those that were outlined on this occasion.

The Strategy

The strategy produced by the Forum is aimed at general users and managers of wetlands and the wider public.

The goal of the Strategy is:

To stop and reverse the loss and degradation of Australian wetlands.

The structure of the strategy is built around four components:

1. Telling stories about wetland management
2. Implementing policies and initiatives
3. Providing mechanisms to involve all sectors
4. A view of the next steps necessary

Each of these components is presented with a summary statement, followed by specific strategies and matching actions.

1. Telling stories about wetland management

Traditional wetland managers have valued wetlands and considered them integral to their own existence and well-being. The values and benefits derived from wetlands were not squandered for short-term or individual profit – they belonged to the community in perpetuity. This situation still occurs where Aboriginal people have traditional ownership of and access to wetlands. However, the story in many other places is one of neglect resulting in the loss and degradation of wetlands, and more latterly, recognised attempts at wetland rehabilitation. The causes of this neglect are familiar and include disruption of historic water regimes, salinisation, pollution and eutrophication, drainage and infilling, invasion by exotic species, overharvesting of individual products, and large-scale changes to the surrounding landscapes. The reasons for this neglect are not as openly acknowledged and include population and development pressures, lack of awareness and political will, centralised and sectoral management. More recently, concerted actions have been thwarted by a surfeit of policies and studies rather than directed actions (see Component 2).

The future of all remaining wetlands depends upon rapid actions to treat the causes and redress the reasons for past loss and degradation. Treating the causes without redressing the reasons is unlikely to be effective. In doing this it is necessary to recognise that valid information exists in many forms and can be collected under vastly different paradigms. Knowledge concerning wetlands can be constructed from peoples' stories which recount events and activities of local owners, and features of cultural, heritage and/or scientific importance.

Strategy 1

- Establish processes to value and exchange information between stakeholders, including local communities and Aboriginal people, and enable different information sources to be assessed and incorporated into our generic information base for wetland management.
- Develop greater cooperation and support between local wetland owners, users and managers, and wetland scientists and conservationists.

  Actions:

  - Provide a forum for stories to be told and to be collected
  - Arrange appropriate meetings between wetland stakeholders to identify both existing and future problems.
  - Combine forces with other wetland stakeholders to lobby and influence governmental policy and programs.
  - Meet with and exchange information between local communities and Aboriginal people and scientists and conservationists.

2. Implementing wetland/water policies and initiatives

It is recognised that wetlands can not be managed independent of their landscape context. They are part of an interconnected biophysical and social complex. Given the role of wetlands in the landscape it is nonsensical to separate wetland management from other water and landscape management programs.

Multiple causes and similar effects, and the need for flexible solutions

Despite recognising that wetland loss and degradation still continues we often do not have adequate data to either describe the ecological character of the remaining wetlands, that is, describe the species habitats and assemblages, and the ecological processes that support them, or assess the extent and rate of adverse change.

Wetlands are often inter-connected and actions at one site can have an effect on another. Many animals migrate between wetlands and in some places regular flooding provides a physical connection. Further, the factors that shape the future of wetlands can occur at an individual site and at a landscape scale. Planning, legislation or regulatory processes that treat wetlands as separate entities may not be able to address limits to development or conflicts between wetland uses. Flexible solutions are required to address the multiple causes of wetland loss and degradation. These are dependent on obtaining and using credible scientific data and coordination between users of these data.

Strategies

- Encourage the adoption of adaptive management approaches that encompass recognition that many wetlands are lost or degraded by a multitude of problems, and that acknowledge the need for long-term monitoring programs based on credible scientific practice and a clear articulation of the problems and objectives.
- Improve coordination between agencies and local groups that exert an influence on wetlands and scientists who monitor and study wetlands, but who do not regularly articulate the implications of their results.

  Actions

  - Provide assistance to wetland scientists to present their results in formats suited to wetland managers and others whose activities adversely affect wetlands.
  - Provide scientific input to governmental policy and programs (eg water reform policy and departmental enquiries) and ensure adequate monitoring is included.
  - Hold meetings between wetland conservationists and scientific stakeholders to advocate the use of sound adaptive management approaches that take into account regional differences.
  - Seek links with environmental advocates and key pressure groups (eg land developers and local councils) through existing or new media and communicate in simple terms the importance of wetlands and the implications of wetland loss.

Wetland/water initiatives and policies

Recent national policy and legislation has provided the first steps towards developing and implementing a national approach to wetland management that encompasses the policy framework and principles outlined under the Ramsar Wetland Convention. Developing consistent state/territory polices and building alliances with non-governmental groups and local wetland users are assisting with making wetlands a 'mainstream' political issue. Public consultation mechanisms have been developed and in some states wetland advisory committees have been established to oversee the implementation of agreed policies and programs. There is an urgent need for implementation now.

Strategies:

- Develop greater consistency and completeness of a national approach to wetland management (including systematic fulfilment of our national obligations under the Ramsar Wetlands Convention).
- Develop mechanisms for interaction between agencies and create conditions for greater staff stability within agencies as a basis for reducing corporate memory loss, suspicion and mistrust.

Actions:

Assist governmental agencies and wetland advisory committees complete a national framework for wetland conservation that achieves key performance criteria and protects existing wetlands.

- Produce a handbook of tools for wetland conservation and management based on the national framework and international guidelines.
- Prepare and review management plans for all Ramsar sites, including the implementation and review of monitoring programs.

Cooperative support for wetland/water research and development programs

Australian wetlands are predominantly located on private land; however, many landholders do not see the value of wetlands, or actively dislike them. For wetland conservation and management to be effective we need to cooperate with landholders in framing the research questions and making use of the outcomes. Wetland research and development programs have not been sufficiently supported by funds for communication or extension services. Further, whilst past research effort has attracted a large amount of ancillary support the formal funding mechanisms have either been discontinued or further support has not been committed. This leads to doubts about our ability to maintain a national research capacity.

Strategies:

- Assist governmental agencies to develop a longer term and holistic vision for wetland research and development, including rehabilitation, with sharing of information and avoidance of reactionary approaches to funding.
- Encourage greater interaction and cooperation between governmental agencies to develop effective and flexible programs that address major information gaps (eg for arid zone wetlands, effect of episodic events) and monitoring of the long-term future of wetlands (eg in relation to global climate change).
- Support efforts to distribute and share the information that is obtained from research programs and ensure this reaches the users and those who can influence the future of wetlands.

Actions:

- Lobby governmental agencies to continue or to contribute towards funding wetland research and development programs, especially those that provide a base for direct wetland assessment and measurement of variability.
- Promote discussion of wetland management and the usefulness of wetland research information in fora that include wetland managers, bureaucrats and social scientists and land planners.

International wetland/water treaties

Australia is party to bilateral waterbird conservation treaties, the Ramsar Wetland Convention, the Bonn Convention on Migratory Species, the Convention on Biological Diversity, and the Convention on International Trade of Endangered Species. How effective have these agreements

been? Can the general principles and good-will generated by these mechanisms be used to produce tangible results on the ground? Listing of wetlands as internationally important can raise the profile of wetlands and encourage more effective conservation, including that undertaken by private landholders.

The federal Environment Protection, Biodiversity and Conservation Act 1999 provides a legislative means to enact the purpose of international environment treaties.

Strategies:

Develop an integrated national framework for the implementation of the Ramsar Wetland Convention and other conservation treaties.

- Develop a program for supporting national wetland conservation beyond cessation of the Natural Heritage Trust funding.
- Encourage effective implementation of the EPBC Act 1999 particularly for wetland habitats and species.

  Actions:

  - Draw up a list of nationally important sites and assist private landholders and governmental officials to list these under the Ramsar Convention and EPBC Act 1999, and to develop management plans.
  - Provide information to scientists and landholders (via listservers and meetings respectively) about listing procedures of the EPBC Act 1999, and the information that is required for nominations to be successful.
  - Hold further meetings with mixed audiences to outline the value of scientific input to conservation programs and legislative mechanisms and develop specific outputs in relation to these (eg shadow Ramsar listings, key threatening processes, or menacing pests).
  - Include within ASL conferences special sessions on the processes for and benefits that can be derived from listing of sites and threatening processes (eg invasive species) under the EPBC Act 1999.

3. Providing mechanisms to involve all sectors

Involving all sectors in wetland management and conservation includes recognising the role and aspirations of all stakeholders and promoting the values and benefits that we derive from wetlands. This is a process for all sectors and not the preserve of one agency, institution or culture.

Increasing awareness through education and outreach programs

A range of organisations concerned with developing and communicating a message about wetland conservation and management already exist and have specific roles. Governmental support for such programs has been shown through WaterWatch, Landcare and now the Communication, Education, Participation and Awareness (CEPA) program which has been developed in support of an international initiative from the Ramsar Wetland Convention.

Strategies:

- Increase the extent of and participation in the national CEPA program to 'get the message right' and recognise the 'conflicts' and demands on wetland resources and between users.
- Establish a wider support base for CEPA activities across all of society and within funding circles to acquire a commitment to funding and resources for communication activities.
- Promote and assist with the specific involvement of scientists in communication and awareness activities with an emphasis on the specific role and knowledge that they hold and the relevance of this information to other wetland users and managers.

  Actions:

  - Undertake specific training programs focussed on consistent plain language messages to link the wetland 'players' and share knowledge.
  - Promote the common purpose of wetland stakeholders and assist them in addressing problems that exist today and those they will face tomorrow (eg climate change and water quality and quantity).

- Extend the network of groups and individuals involved in CEPA activities, including scientists and academics and collate some clear and essential plain language (free of jargon) messages about wetlands.
- Undertake specific analyses of how people learn and respond to messages about wetlands and hence how these messages can be best broadcast, taking into account the possible need for specialist training in communication skills.

Involving the private sector through incentives and consultation

The private sector should be involved in wetland management and conservation as they have influence on the future and fate of many wetlands. Further, they can provide a direct line to those who make decisions about wetlands. Incentives to involve the private sectors are needed and could ideally be linked to the rationale of doing business – making a profit from sustainable activities. Involving the private sector may require a shift in attitude by components of the scientific, conservation and governmental sectors; to be an effective voice in wetland conservation the private sector will need nourishing and support through direct and indirect actions.

Strategies:

Develop a wider range of financial/tax incentives and inducements to involve the private sector more fully in wetland conservation and management, including cooperation with non-governmental and community-based groups.

- Foster strategic partnerships and simple non-bureaucratic processes that support involvement of the private sector in national programs without the encumbrances of some current funding processes.
- Develop independent accreditation schemes for private sector groups involved in wetland conservation as a basis for encouraging investment and support of 'green' companies.

  Actions:

  - Engage the private sector in wetland conservation activities through support of their initiatives (eg cause-related marketing) and recognition of their role and influence, especially at key-sites for wetland conservation.
  - Ask private enterprises how they would like to be involved and keep them informed of current programs and incentives that encourage their involvement and support of community-based programs and research.
  - Promote use of existing financial and tax incentives in support of clear and consistent messages about the values and benefits that can be derived from wetlands and support of wetland conservation and rehabilitation schemes.

4. Where next?

As we address the actions outlined above we need to consider and develop further actions and alliances to achieve these. The evidence is already before us – scientists, conservationists and community-based groups will achieve less if they do not combine with each other and positively engage the public and private sectors in addressing a common goal. There is a role for each and each has a role in developing the synergy needed to stop and reverse the loss and degradation of Australian wetlands.

Distribution of the strategy

The strategy was not produced for the singular usage of participants in the inaugural Forum. To be effective it needs to be widely distributed and debated by all stakeholders. This is an ongoing process and one that extends beyond the organisers and participants in the inaugural Forum. ASL and WWF-Australia encourage the wider distribution of this Strategy and forgo any copyright claim on the document.

Strategy:

- Distribute the strategy through available media outlets and organisations and encourage its adoption by stakeholders.

  Actions:

- Place the strategy on the ASL and WWF-Australia web sites and draw it to the attention of members and wetland stakeholders through other media such as newsletters and listservers
- Distribute the strategy to other wetland interest groups and seek their support in addressing the identified actions.
- Send the strategy to all state/territory conservation and/or environment agencies and to relevant federal agencies and corporations.

Review of the strategy

Components of the strategy will soon date and require reassessment. Acceptance of the strategy and its recommended actions will soon alter the priorities currently identified. Other parts of the strategy will continue and require long-term attention and interest. The currency of the strategy will need addressing by individual stakeholders and feedback provided to others.

Strategy:

- Encourage individual stakeholders to assess the currency of the strategy and provide feedback to all other stakeholders, and to redefine their priorities accordingly.

  Actions:

  - Collate and circulate feedback on the strategy to stakeholders in the Forum and encourage reassessment of priority actions and their effectiveness.
  - Request stakeholders in the Forum to collaboratively develop further meetings and events to build-on and further develop the strategy.

Acknowledgements

This strategy was prepared by a small working group from ASL and WWF-Australia. on the basis of material presented during the inaugural Forum held in Darwin, 8 July 2000. The speakers and participants are thanked for their contributions during the Forum and in commenting on earlier drafts of the Strategy. Liz Brown is especially thanked for facilitating the Forum.

The support of ASL and WWF in developing the Forum and the Strategy was essential, as was the logistical support of the National Centre for Tropical Wetland Research in organising the Forum.

The support of all wetland stakeholders in supporting the actions promoted by the Strategy is anticipated.

Contact details for comment on this draft document:

Dr Max Finlayson maxf@eriss.erin.gov.au

Dr Pierre Horwitz p.horwitz@cowan.edu.au

ANNOUNCEMENTS

CRC WATER FORUM

"YOUNG WATER SCIENTIST OF THE YEAR" AWARD 2001

The Cooperative Research Centres (CRC) Program is being increasingly recognised as promoting excellence in the development of young scientists. This Federal Government funded Program which commenced in 1991 is developing a new generation of scientists with a unique blend of skills including quality science, good communication skills and an understanding of industry.

The Young Water Scientist of the Year Award highlights the key role CRCs, and specifically the Water Forum CRCs, play in training young scientists to be valued assets in the workforce, by recognising an outstanding water scientist undertaking a CRC research project.

The CRCs making up the Water Forum group are the CRC for Catchment Hydrology, the CRC for Coastal Zone, Estuary and Waterway Management, the CRC for Freshwater Ecology, the CRC for Waste Management and Pollution Control and the CRC for Water Quality and Treatment.

Prizes

A prize of $2000 will be awarded to the winner and $250 to each of the other finalists.

Each of the finalists will also receive a certificate as a record of their participation.

ELIGIBILITY

Any student undertaking a PhD, Masters or other postgraduate degree as part of a research program in the Water Forum group of CRCs, or whose degree was completed in 2000, can be nominated for the Award.

The theme of the presentation must be water-related to qualify for the Award.

TIMING

The following deadlines should be noted:

Each CRC is to choose two candidates for the Award from amongst the eligible nominees and to forward them to the Awards Organiser by Monday 8 January 2001

Two candidates' papers from each CRC will then be forwarded to the Judges who, on the basis of the papers, will select one finalist from each CRC and advise the Awards Organiser by Thursday 25 January 2001

The Awards Organiser will advise each CRC and candidate of the successful finalists by 1 February 2001

Finalists will present their papers at the Australian Water Association 19th Federal Convention in Canberra, 1 to 5 April 2001. The Award will be presented during the Convention. (Actual details to be confirmed)

SELECTION PROCESS

Applicants will submit a short paper - 4 pages maximum in 12-point font - to their CRC director on the research they are undertaking and the significance of the project outcomes for stakeholders.

Each Water Forum CRC will nominate two candidates and determine the process to select their candidates.

Papers from the two selected candidates from each CRC will be forwarded to the judges who will select the finalists based on the quality of the written papers. One finalist will be chosen from each CRC.

Finalists will be required to make a fifteen-minute verbal presentation of their work and to answer questions for a further ten minutes. Judging will be on the basis of:

The quality of the research
The quality of the presentation (written and oral)
The significance of the project outcomes for stakeholders

Publicity

The media will be invited to the presentation of finalists' papers and a media release will be issued to announce the winner of the Award.

In keeping with the status of the Award, the presentation to the Young Water Scientist of the Year will occur in a high profile way.

The Judges

The candidates' papers and the finalists' presentations will be judged by a panel of eminent persons from the water industry.

Awards Organiser

Contact details for the Awards Organiser for the Young Water Scientist of the Year Award 2001 are as follows:

Dr Gerard Vaughan, Liaison Officer, CRC for Water Quality and Treatment, Phone: 03 9545 2184 Fax: 03 9545 2446, Email: gerard.vaughan@molsci.csiro.au, Postal Address: Bag 10, Clayton South, Victoria 3169

The Awards are supported and hosted by the Australian Water Association.

SNOWY RIVER

The SNOWY RIVER was the big news for the Weekend Australian with three stories (The Nation, p 6 & 7 and editorial on p 18). Surprisingly, little coverage in other papers. NSW and VIC have reached an agreement on environmental flows that is likely to win federal support. Agreement sets a long-term target of 28% of natural flows down Snowy River; meeting an expert panel's recommendation some time back; with 21% within 10 years. Farmers appear to be confident they can produce the required 100k ML savings through irrigation system improvements and SA seems content with the prospect that some of the savings will find their way into the River Murray. NSW & VIC are providing $300M to fund water conservation schemes and it is hoped the Federal Government will provide some of the surplus anticipated from corpratisation of the Snowy Mountains Authority.

ASL Congress 2001

Where: **Rich River Golf Club Resort, Moama**
(near Echuca on the Murray River, Victoria)

When: 27th September – 1st October 2001
(Registration: Thursday afternoon & evening;
Conference Sessions: Friday 8:30am, 28th Sept. – Monday, 1st Oct., 1pm; Saturday afternoon will be free for other activities)

Conference Organising Committee:

Margaret Hart (margaret.hart@sci.monash.edu.au)
Rhonda Butcher (rhonda.butcher@sci.monash.edu.au)
Mike Grace (mike.grace@sci.monash.edu.au)
Michael Shirley (mshirley@skm.com.au)
Sabine Schreiber (sabine@unimelb.edu.au)

Address for Correspondence:
Margaret Hart
22 Netherby Ave
Mulgrave VIC 3170

MURRAY DARLING BASIN NEWSLINE

This is just a quick note to inform you about the Murray Darling Basin Newsline, an email briefing group designed to help people working on land and water management issues communicate with each other.

Scientists, government officials, people interested in policy, journalists, economists and communicators already subscribe to the list.

I invite you to subscribe. I anticipate that the Newsline messages will complement news and information you already receive on the asl list. I will do my best to minimise dupication.

The Newsline provides the following opportunities:

- a chance to receive regular briefings about issues and developments in the Basin - a chance to discuss issues with colleagues - a chance to hook up with others with similar goals/projects - an opportunity to promote your work or publication - hear about seminars, conferences and meetings in your area.

To subscribe, send a blank email to:

mdbnewsline-subscribe@egroups.com

Once you've subscribed, you can post messages by mailing:

mdbnewsline@egroups.com

Please feel free to contact me (details below) if you have questions or comments.

Alecia Jones
Marketing and Communications Officer
Murray-Darling Basin Program
World Wide Fund For Nature Australia
ph 02 6257 4010 fax 02 6257 4030
alecia@wwf.org.au

INTERNATIONAL WORKSHOP ON ARTEMIA

Artemia & Aquatic Animals Research Center
Urmia University, Urmia, Iran
12th to 15th May 2001

First Announcement for Participation and Call for Contribution

We are pleased to invite you to participate in an International Workshop on Artemia which will be organized by the Artemia and Aquatic Animals Research Center at the Urmia University in Urmia - Iran from 12th to 15th May 2001. The importance of Artemia is a well documented fact. It is known that environmental changes affects Artemia cyst and biomass production in natural reservoirs such as Urmia Lake-Iran, as well as in the Great Salt Lake-USA, presently the largest natural biotopes of Artemia in the World. This supports the idea for a more rational use of the natural resources of Artemia. Iran has huge potentials for production of Artemia, either from natural biotopes or through extensive pond culture which could be beneficial to the whole aquaculture production in the world. Hence the idea for organizing this workshop. The Artemia and Aquatic Animals Research Center (AAARC), the host institution, was established in Urmia University in 1998 (although the research activities on Artemia had begun in Urmia University in 1992) in order to study the Artemia resources in the country, their ecology, culture, genetics, microbiology, use in aquaculture, etc. Some prominent scientists will be invited to the workshop to give special oral sessions on the most crucial issues on Artemia. We also encourage other participants to present some of their research on culture, genetics, ecology and resource assessment, enrichment and use of Artemia in larviculture of fish and shrimp. Speakers will be allocated 30 minutes for each presentation, with 10-15 minutes for discussion. Since we expect participants from Middle East & Central Asian countries as well, we believe that demonstrations of standard methods for the study of life cycle characteristics, enrichment with HUFA and Vit. C, analytical methods, intensive culture in tanker and sampling methods from large lakes, would be very useful. Therefore the workshop will be subdivided in two sections. The First Section on (12th-13th May) will include speeches, and the Second Section on (14th -15th) May will be for practical demonstrations. Overhead projectors, slide projectors and video projectors will be available. All presentations should be in English. There will be a registration fee of US$ 150/- for overseas participants, to help offset organizational costs. Registration fees will be payable on arrival to Urmia. Participants are requested to submit the pre-registration form and the abstract of their presentation according to the routine format for conferences and send them as attachments by e-mail to artemiaworkshop@research.urmia.ac.ir or fax them to +98-441-443442 before Jan. 30, 2001. The Second announcement will be sent only to those who have pre-registered, with a detailed schedule for the workshop, options for accommodation, travel information and organizers program for trips and visits during the workshop. All necessary assistance for hotel bookings and travel arrangements between Tehran to Urmia will be provided by the Organizing Committee. Please address all correspondence to: artemiaworkshop@research.urmia.ac.ir or Artemia workshop, Urmia University, P.O.Box No. 165, Urmia 57153, Iran.

Naser Agh
Secretary, Organizing Committee

1.1415525114 E-04 YEARS

MINUTES OF THE ASL EXECUTIVE TELECONFERENCE, 22 NOV 2000

Present: P.McEvoy, P.Horwitz, S.Josey, A.Boulton, A.Spiers, M.Hart, M.Shirley, I.Growns, J.Marshall, R.Marchant

1. Executive positions: the president, Jane Chambers, is keen to finalise the roles of various members of the executive. A number of roles remain vacant. It was agreed that student liaison should remain with the secretary, but that matters related to student awards or the student subcommittee should be dealt with by A.Boulton. P.Horwitz agreed to be the submissions officer for public documents put out by the society e.g. the recent Snowy River submission. Media liaison should be carried out by the executive but how this should be done or who should do it could not be resolved (see item 6 of these minutes). Initial liaison with other societies would remain a duty of the secretary. There was some discussion about the value of appointing a bibliographic promotions officer dealing with grey literature, book reviews and other useful printed material. It was felt that this could be done by alerting members via the web site to the existence of this material, rather than by appointing someone to this role.

2. 2000 Congress: A.Spiers announced that the Darwin conference had made a profit exceeding $8000. Conference related finances will be finalised in the next few weeks and the profit will be forwarded to the treasurer. The executive congratulated the congress organisers for their successful financial management. A draft document from the Aust Wetland Forum (held in Darwin) has been completed and will be sent to the newsletter and the web site soon.

3. 2001 Congress: the organising committee consists of: M.Hart, M.Shirley, R.Butcher, M.Grace, S.Schreiber. The Rich River Country Club near Echuca is the venue for the meeting. There are other motels and a caravan park within 1km of the club. 220-240 delegates are expected. At present the conference is planned for Fri 28 Sept to Mon 1 Oct and the theme will be "Lowland Rivers"; a symposium session on this topic is planned. The Society for Wetland Scientists is planning to hold a workshop at the same venue, which may well take place immediately before the ASL congress.

4. ASL computer: the computer used for financial records, address labels and other matters by the treasurer (Margaret Hart) is now 9 years old and badly needs upgrading. It was agreed that Margaret should determine the cost of replacing the computer (both hardware and software) before such expenditure could be approved.

5. ASL medal committee: a nomination has been received for the ASL medal. J.Chambers, as president, is a member of the medal committee. Two other members need to be appointed by the executive.

6. Media policy: there was animated discussion about how the society should handle the media. It was suggested that the ASL needs advice on what it can reasonably hope to do with the resources it has. P.Horwitz, D.Nias, A.Spiers and J.Chambers agreed to form a sub-committee that will pursue these matters.

7. Direction of ASL: J.Chambers will draft a letter replying to correspondence in the September newsletter about the content of the recent ASL congress. Jane will circulate this letter to the executive for comment

8. Carp policy: John Harris circulated a final draft of the Carp policy statement at the recent AGM in Darwin. The secretary has an electronic version of this document, which he will circulate to the executive for comment, before it is published by the society.

9. Contacts database: some of the state representatives have sent Margaret Hart lists of people (contacts) to whom policy documents should be sent. These lists need to be revised. It was suggested that one of the functions of the media sub-committee could be to define the 'boundaries' of these lists, so that policy documents do not get sent to inappropriate recipients.

BOOK REVIEW

Australian Freshwater Algae (Exclusive of Diatoms) by H.U. Ling & P.A. Tyler (Bibliotheca Phycologica 105) 643 pp. (incl. 159 plates). Softcover, cost 190 DM (c. $150).

Australia does not have a national freshwater algal flora[1]. There are a few regional studies, some guides to common genera, and nation-wide revisions of only a few genera. With reported Australian endemism averaging 10% for species maybe it doesn't matter. However there is some evidence that endemism has been greatly underestimated. Twenty years ago, species endemism in the red algal genus *Batrachospermum* hovered around the national average. After thorough taxonomic revision, including examination of types and morphological and molecular comparisons with overseas taxa, endemism nows runs at 65% (or 75% if we include New Zealand). Of the 573 genera of freshwater algae reported from Australia, less than 5% have been revised with any degree of taxonomic rigour (and even those groups require further collecting and study to bring them to the level of most groups of vascular plants). Endemism will vary from group to group, but it likely to be much higher than documented currently. The reported endemism of about 33% for infraspecies suggests that the diversity may have been recognised but taxonomically misplaced.

So taxonomic research is needed, and a national flora would be useful. Ling and Tyler have made a considerable contribution to the documentation of Australia's freshwater algal flora over 30 years. This book is a compilation of their work. About 900 taxa, including some 700 species, are briefly described (most with a few cell measurements) and illustrated (most with a single line drawing). Five new species are described --- *Schizochlamys tetradiformis* Ling (p. 119), *Staurastrum cyclops* Ling (p. 220), *S. unguiculatum* Ling (p. 247), *Xanthidium cordatum* Ling (p. 207) and *X. reniforme* Ling (p. 211) --- and one new combination made, *Euastrum australis* (Krieger) Ling (p. 184). Ling and Tyler's other major work, *Limnological Survey of the Alligator Rivers Region. II. Freshwater Algae, exclusive of Diatoms* (1986), included similar information on 530 species from billabongs in Northern Territory.

Although called 'Australian Freshwater Algae', the book doesn't include all species described from Australia (in itself considerably less than the actual number of species in Australia). Many known species are excluded because the authors haven't seen them (e.g. most 'macroalgae' and all species from lotic systems). Others are excluded because they require electron microscopy to identify to species level. Still others are omitted because they haven't been documented before (e.g. species of the cyanobacterium genus *Synechococcus* were included by the authors in a checklist of species from Dalhousie Springs, but are excluded here). The selection of taxa is pragmatic.

The information provided for each taxon is equally pragmatic. Expanded descriptions and more detailed illustrations (including photographs) are provided for *Tesellaria vovocina*, *Chrysonephele palustris* and *Oscillatoria kawamurae* by the second author, presumably because they were available. Most species are very briefly diagnosed. There is some taxonomic discussion in some groups, particularly the dinoflagellates and some desmids, but not for all species. The rationale for identification and the author's concept of the taxon are seldom documented.

The focus is primarily 'microalgae', the algae that can't be seen with the naked eye. The smattering of macroalgae is misleading in that it represents an obscure and eclectic selection. The fear is that

[1] Australian Biological Resources Study is coordinating, editing and contributing some funding to the production of *Algae of Australia*, a 'flora' of algae from all habitats in Australia. The introductory volume is nearly complete and the first taxonomic accounts have been submitted.

users will identify any unbranched filamentous algae as *Ulothrix flacca* or a gelatinous red alga as *Batrachospermum moniliforme*[2]. Rather than 'a beginning' (p. 7), this approach is likely to implant arbitrary names into the literature for many years to come. I personally would prefer that collections were identified to genus only if all or most species can't be documented and compared. And there are no Characeae or common weedy macroalgae such as *Cladophora glomerata* and *Stigeoclonium tenue*. The focus on still rather than running water only partly explains this omission.

A more informative title would be 'Freshwater Microalgae of Australian Lakes and Billabongs' or similar, and it is in this environment that the book will be of most use. The desmids are comprehensive, although again from the perspective of the authors' collections rather than Australia as a whole. There is no key provided for any group, the authors stating that most users will flick through the illustrations. Perhaps. However a single illustration is not enough to identify a species, and the variation in a taxon is important. The desmid genus *Staurastrum* includes one the few species, *S. tohopekaligense*, illustrated to show morphological variation. Sixty-five drawings taken from a recent (1995) publication are accompanied by essentially an abstract of that paper. This contrasts with the treatment of an equally variable desmid species such as *Micrasterias truncata*, where the single illustration cannot capture the variability in this taxon given passing mention in the text. All recent desmid authors stress that a single cell is insufficient for both defining and identifying species in this taxonomically complex group.

There seems to be a lack of acceptance of the modern species concept where a name is attached to a type specimen but the species concept needs to be defined by the author. A single illustration and a couple of measurements do not define a species, merely some objects in biological space. The statement 'if anything is false it is the neat pigeon holes that taxonomists try to force these organisms [*Staurastrum*] into' (p. 253) applies only to this sort of pigeon holing of single objects. Taxonomists recognise that species are part of a phylogenetic 'chain of being', ever changing, and that taxa/pigeon holes, whether based on biological criteria or pragmatism, represent a slice through this continuum. It is not a mail sorting system that will stay in use for a few millenia, it is an active theory to be tested, refined and adapted with the changing biota and knowledge.

The illustrations themselves vary from excellent in e.g. desmids, to only fair. Try for example to separate species of *Microcystis*, *Aphanothece* and *Gloeothece* (Cyanobacteria) based on the drawings provided. Even where the illustrations are fantastic, the diagnostic features are not documented so the user doesn't know what to look for in the pictures (especially when they are snapshots of objects). What are the defining characteristics of the many species of *Cosmarium* reported? With this genus, TJE is definitely one of the 'users for whom [*Cosmarium*] are only a very small part of their professional lives' (p. 8), yet it is doesn't answer his needs.

The five new species are all validations of unnamed entities characterised in Tyler and Ling's 1986 opus. Their publication meets the requirements of the International Code of Botanical Nomenclature, but little more. There is no comparison with other species in the genus (and a brief Latin description rather than diagnosis), the illustrations are minimal, and the type locality information is cursory (reference to previous publications is needed to get date of collection). This is a disappointing.

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[2] The latter is a superfluous name replaced by *B. gelatinosum* and in any case the illustration shows a species in a different part of the genus, either *B. vittatum* Entwisle & Foard or *B. ambiguum* Entwisle & Foard. The misidentification is perhaps understandable (TJE confirmed the collection as *B. moniliforme* in 1981 when he started working on this group), but there has been considerable research on the genus since then, with all changes to nomenclature and taxonomy published in accessible journals. There are 20 species in Australia, 13 endemic to Australia and 2 to Australia and New Zealand.

The authors are clear about why the book was produced. The introduction and acknowledgments present a spirited, if somewhat defensive, argument for the money poured into the research and the publication. It was funded by and is primarily for aquatic managers, although the authors expect it will be of lasting value to 'academia'. Ling and Tyler's book is certainly a valuable resource document but as outlined above, it must be used with caution by those without some experience of algae. As the authors acknowledge, the illustrations should serve as an entry point to more detailed taxonomic works. We have our doubts that this book will be suitable for the general user wooed in the introduction: 'confident calm' (p. 8) may not be the standard response. However as products of 'academia' we are not best placed to judge this.

A surprising omission given the experience of the authors, is the almost total absence of ecological information. Where do they grow, how common are they, what are there habitat requirements? All basic questions for aquatic managers or scientists. The restricted geographic coverage is also of concern. Rather than Australia, it is mostly Northern Territory and Tasmania, reflecting the collecting haunts of the authors. How well this represents the microalgal flora of Australia we don't know, but this can be tested over coming years and does not necessarily detract from the venture. On balance, we are happier seeing this work in the accessible literature rather than the grey literature on agency shelves.

Tim Entwisle & Stephen Skinner
Royal Botanic Gardens Sydney

I'VE BEEN TO

INTECOL

submitted by Michael Reid

Ben, Jenny & Meghan - on the conference cruise, the drinks appear to be doing their job

Gerry, Terry & Michael - outside the museum of quebec. Terry and Michael ham it up while Gerry keeps it real

limnos with cats -five limnologists and a geomorphologist (the album is due out in the new year)

Martin, Terry & Gerry - outside the conference centre with the leaping cats (what's with that pose, Martin?)

CONFERENCE CAPERS

10th International Conference on Rainwater Catchment Systems

A conference within Rainwater International 2001. In conjunction with The International Rainwater Fair and The Forum: Rainwater Harvesting in Practice Date: 10 - 14 September 2001 Location: Mannheim, Germany up-to date-information at www.rainwaterconference.org.

Topics

B1: Rainwater Catchment Systems in the Urban Environment:
Technology, systems design, marketing aspects, economics, treatment, run-off mitigation, soil infiltration,...

B2: Rainwater Harvesting in humid and arid regions:
innovative approaches, single source vs. supplementary source, modelling, project design and implementation,...

B3: Rainwater Harvesting: The quality issue:
health aspects, mosquito problems, quality guidelines...

B4: Water harvesting for agriculture, including environmental aspects:
water concentration, supplemental irrigation, groundwater pollution, creation/loss of wetlands,...

B5: Public/official support and awareness creation:
legal aspects, policy, attitudes, education, training,...

For further information and registration, please contact
Hans Hartung, www.rainwaterconference.org

WA STATE LANDCARE CONFERENCE 2001

The web site for the conference is: http://www.avonicm.org.au/avonicm/lcconference

THE 8th INTERNATIONAL WATERFOWL AND WETLANDS SYMPOSIUM

Waterfowl Legacy- Links to Watershed Health; sponsored by Duck's Unlimited, will be held in Washington D. C. 20 - 22 July, 2001. A Latin American and Caribbean Waterfowl Conference Workshop will be held prior to the Symposium on 19 July. Experts from around the world will gather to share their research findings and their opinions on a range of issues affecting waterfowl, wetlands and their management. Sessions topics are as follows: Watershed Health and Waterfowl, North American Waterfowl Management Plan Checkup, The Future of Waterfowl and Beyond North America. Join us in the unique discussion of the important issues facing the management and protection of these valuable resources. For further information on the scientific program or other details contact BRENDA CARLSON (bcarlson@ducks.org) Additional symposium and registration information will be available atwww.ducks.org in the new year.

WATER RESOURCES MANAGEMENT

2001 24 - 26 September 2001, Halkidiki, Greece
Organised by Wessex Institute of Technology, UK and University of Thessaloniki, Greece With the Collaboration of University of Delaware, USA FOR THE LATEST CONFERENCE INFORMATION VISITOUR WEB SITE AT:http://www.wessex.ac.uk/conferences/2001/wrm01/

CONFERENCE TOPICS

* MANAGEMENT AND PLANNING
  Advanced Computer Systems, Multimedia and Internet Applications
  Decision Support Systems
  Floodplain Integration
  Groundwater Management
  Integrated Water Planning and Management
  Land Use Regulations and Watershed Management
  MIS and GIS Applications
  Quality and Pollution Control
  Reservoir Modelling and Simulation
  Risk Analysis and Uncertainty Modelling
  Runoff, Sediment and Pollutant Control
  Storm Water Management
  Wastewater Treatment and Management
  Water Resources Systems
  Watershed Management
  Wetland Regulations and Management

* SUB-SURFACE FLOW
  Coastal Aquifers
  Flow in Heterogeneous Aquifers
  Groundwater and Flow in Porous Media
  Multiphase Flow
  Parameter Estimation and Inverse Problems
  Saltwater Intrusion
  Subsurface Transport
  Unsaturated Porous Media
* SURFACE FLOW
  Free Surface Flow
  Flow in Pipes and Open Channels
  Coastal and Esturine Flow
  Flow in Lakes, Lagoons and Reservoirs
  Hydrological Modelling
  Wave Propagation

For further instructions on paper submission, please see:

http://www.witpress.com/authors.htm#Conference

WATERWATCH NATIONAL CONFERENCE 2000

November 20-24, 2000: 'The Next Bend in the River' Nathan Campus, Griffith University, Brisbane. Nadia Kingham, Wetlands Unit, Environment Australia, 02-6274-2312. Or Carillon Conference Management, phone:07-3368-2644 email: mail@ccm.com.au

International Association of Theoretical and Applied Limnology

February 2001 28th (SIL): Melbourne, Australia

Role of Drought in Aquatic Ecosystems

February 2001 Symposium on the: Albury,
Australia. e-mail: hump@mdfrc.canberra.edu.au (please include the word 'Symposium' in the subject heading).

XVIIth INTERNATIONAL SEAWEED

28 JANUARY - 2 FEBRUARY 2001:
SYMPOSIUM: CAPE TOWN, SOUTH AFRICA
Please also feel free to contact our website at:
http://www.uct.ac.za/conferences/iss

International Congress on Invertebrate Reproduction and Development

15-20 July 2001 9th: Rhodes. University, Grahamstown, South Africa. Inquires Alan Hodgson, Rhodes University 6140 South Africa ph (+46) 6038526 fax (+46) 6224377.

Seventh International Phycological Congress:

August 2001 Thessaloniki in north-eastern Greece. For more details, visit our website at: http://dictyocha.bio.auth.gr/7ipc2001 or try http://www.seaweed.ie/phycologia

16th ASPAB conference

31 August to 2nd September, 2001 in 2001, Heron island, Qld, Contact Philip Orr, ASPAB Vice-President, Chairman of the 16th ASPABConference Organising Committee

29th International Association of Theoretical and Applied Limnology

August, 2004. (SIL): Helsinki, Finland.

ASL VOLUNTEERS

The following people have volunteered to speak as experts on behalf of the ASL. If you wish to be included on the list contact:

Dr Richard Marchant (ASL Secretary)
Email: rmarch@pioneer.mov.vic.gov.au

The following members are prepared to speak on behalf of the ASL on their area of expertise.

Australian Society for Limnology volunteer spokespeople

Prof A. Arthington:
in stream flows, ecology of exotic fishes, conservation of rare fishes.
Centre for Catchment & Instream Res, Griffith University, Natham Qld. 4111. Phone (07)275 7403 , Fax: (07)277 3759

Dr P. Boon:
bacteriological issues, wetlands.
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Dr K.Bowmer:
pesticides - fate and ecological impact, aquatic plan management.
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wetlands, Ramsar convention.
Alligator Rivers Region, Office of Supervising Sci, Post Office, Jabiru, NT 0886. Phone (089)799 756, Fax(089)792 499 email:masf@eriss.erin.gov.au

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Dr Mark Harvey:
watermites.
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K. Hortle:
impact of mining, impact of development in Se Asia and PNG on rivers.
Environmental Management, 18 Sharrow Road, Mitcham, Vic. 3132. Phone and Fax: (03) 9872 4101

Dr P. Horwitz:
conservation of freshwater invertebrates.
Centre for Ecosystem Management, Edith Cowan University, Joondalup Drive, Joondalup, WA 6027. Phone (08)94005558, Fax: (08)9400 5070 email: phorwitz@cowan.edu.au

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